TOSHIBA

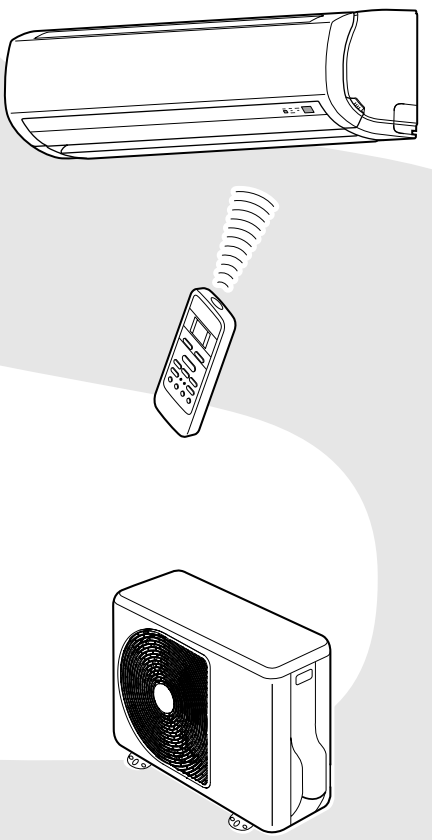
FILE NO. SVM-08028

SERVICE MANUAL

AIR CONDITIONER

SPLIT WALL TYPE

RAS-07SKSX-1 / RAS-07S2AX-1
RAS-09SKSX-1 / RAS-09SASX-1



April, 2008

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1. SPECIFICATIONS

ITEM \ MODEL			RAS-07SKSX-1 / RAS-07S2AX-1		RAS-09SKSX-1 / RAS-09SASX-1	
			Cooling			
Capacity			220V	240V	220V	240V
		kW	2.00	2.00	2.50	2.50
Power source		Phase	1□			
		V	220 - 240			
		Hz	50			
Power consumption		kW	0.62	0.66	0.84	0.88
Power factor		%	98	96	98	98
Running current	Indoor	A	0.15			
	Outdoor	A	2.72	2.72	3.75	3.60
Starting current		A	13		15	
Moisture removal		lit/h	0.5		1.2	
Noise	Indoor (H/M/L)	dB	40/35/30		43/38/33	
	Outdoor	dB	46	47	46	47
Refrigerant	Name of refrigerant		R22			
	Rated amount	kg	0.58			
Refrigerant control			Capillary tube			
Interconnection pipe	Gas side size	mm	□	9.52	□	
	Connection type		Flare connection			
	Liquid side size	mm	□6.35			
	Connection type		Flare connection			
	Maximum length (One way)	m	10*1			
	Maximum height difference	m	5			
INDOOR UNIT			RAS-07SKSX-1		RAS-09SKSX-1	
Dimensions	Height	mm	250			
	Width	mm	740			
	Depth	mm	185			
Net weight		kg	8			
Evaporator type			Finned tube			
Indoor fan type			Cross flow fan			
Air volume	High fan	m^3/h	510		540	
	Medium fan	m^3/h	430		470	
	Low fan	m^3/h	350		390	
Fan motor output		W	20			
Air filter			Honeycomb woven filter with PP frame			
OUTDOOR UNIT			RAS-07S2AX-1		RAS-09SASX-1	
Dimensions	Height	mm	530			
	Width	mm	660			
	Depth	mm	240			
Net weight		kg	25		26	
Condenser type			Finned tube			
Outdoor fan type			Propeller fan			
Airflow volume		m^3/h	1580	1620	1640	1720
Fan motor output		W	20		20	
Compressor	Model		PH108X1C-4DZDN2		QK164PBA	
	Output	W	605		780	
Safety device			Fuse, Overload relay			
Louver type			Automatic louver			
Usable outdoor temperature range		°C	21 ~ 43			

Note : 1

- Capacity is based on the following temperature conditions.

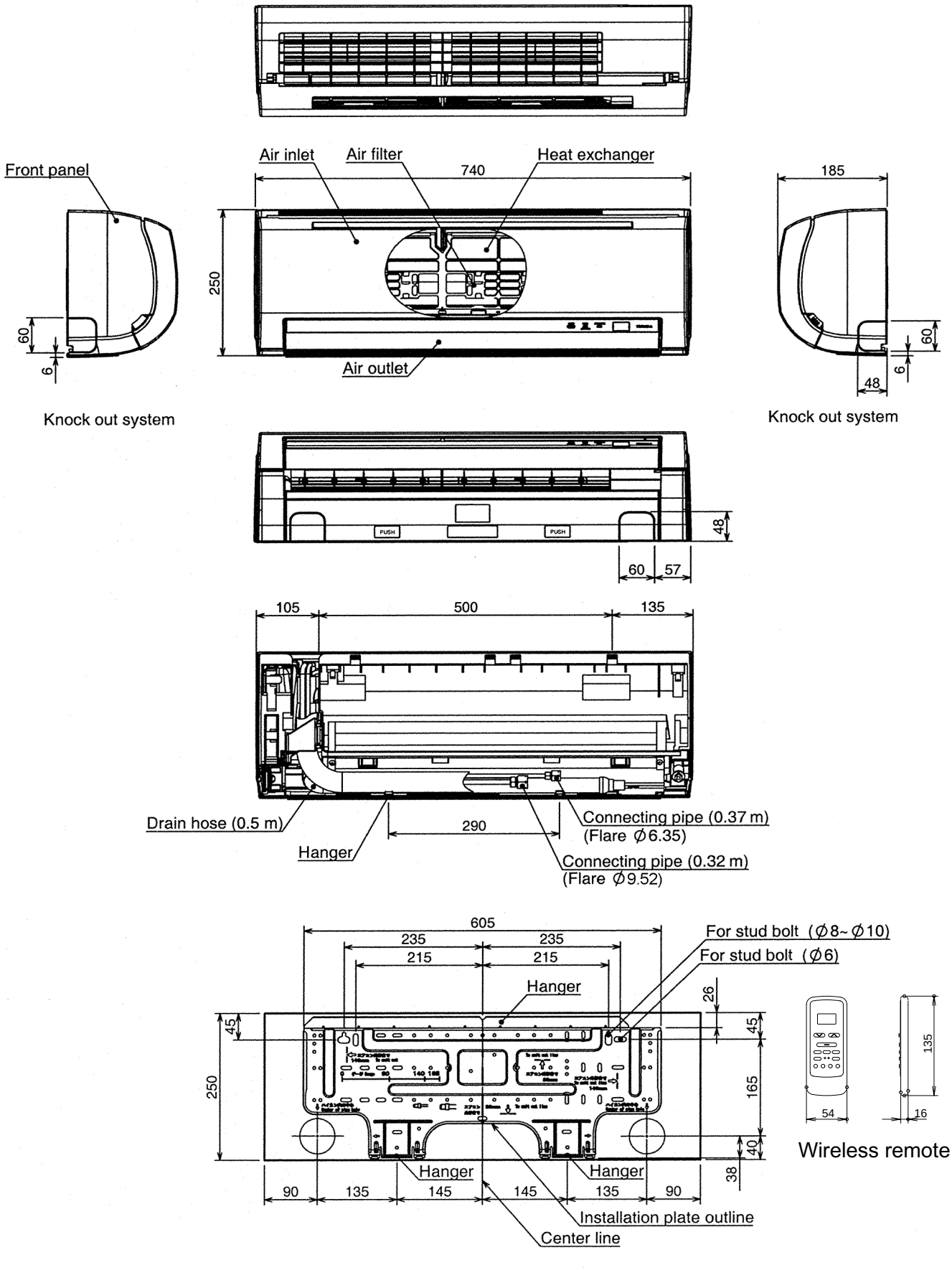
Temperature \ Condition		JIS C9612
		Cooling
Indoor unit inlet air temperature	(DB)	27°C
	(WB)	19°C
Outdoor unit inlet air temperature	(DB)	35°C
	(WB)	24°C

Note : 2

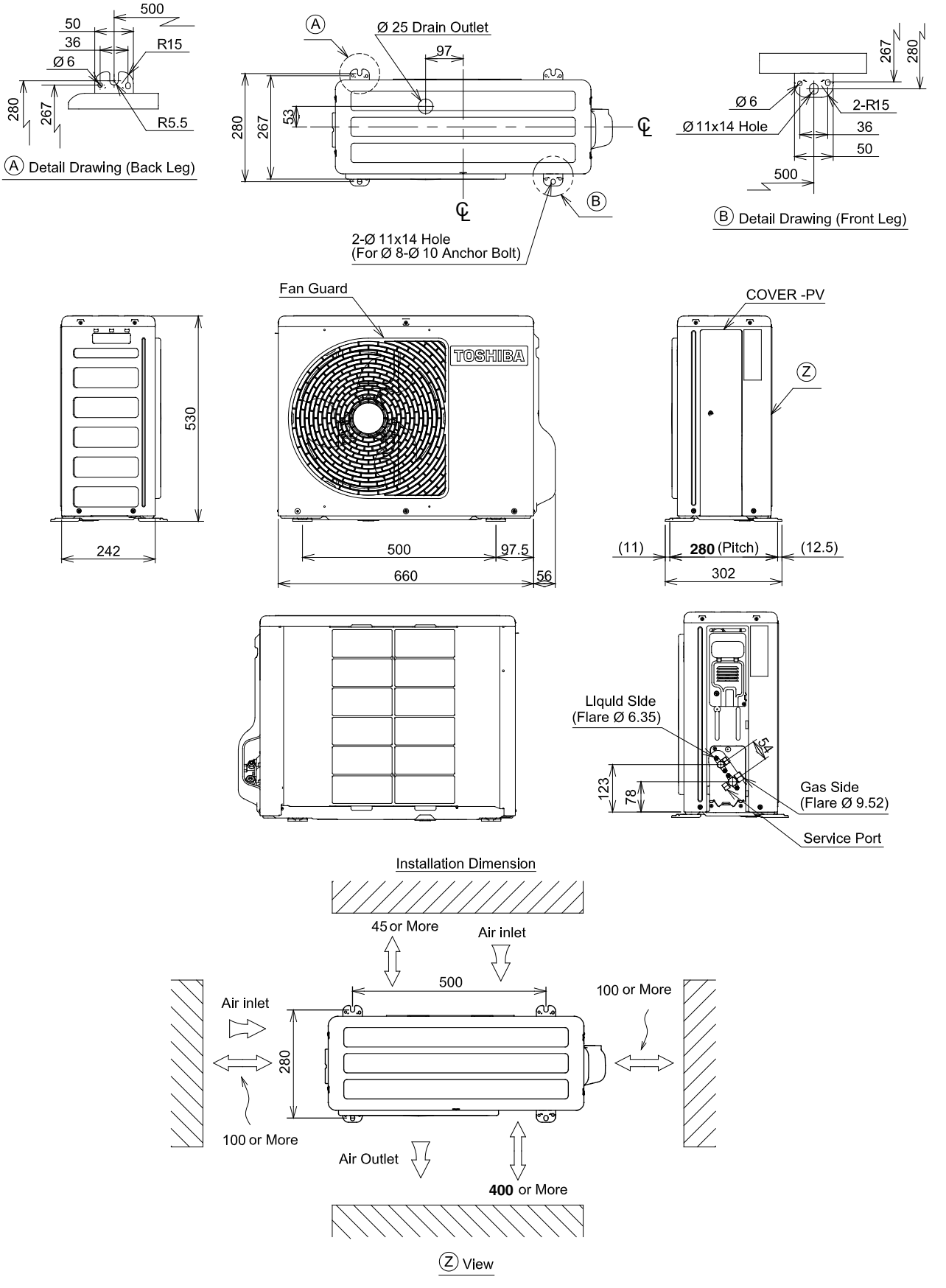
*1 No need to charge extra refrigerant.

2. CONSTRUCTION VIEWS

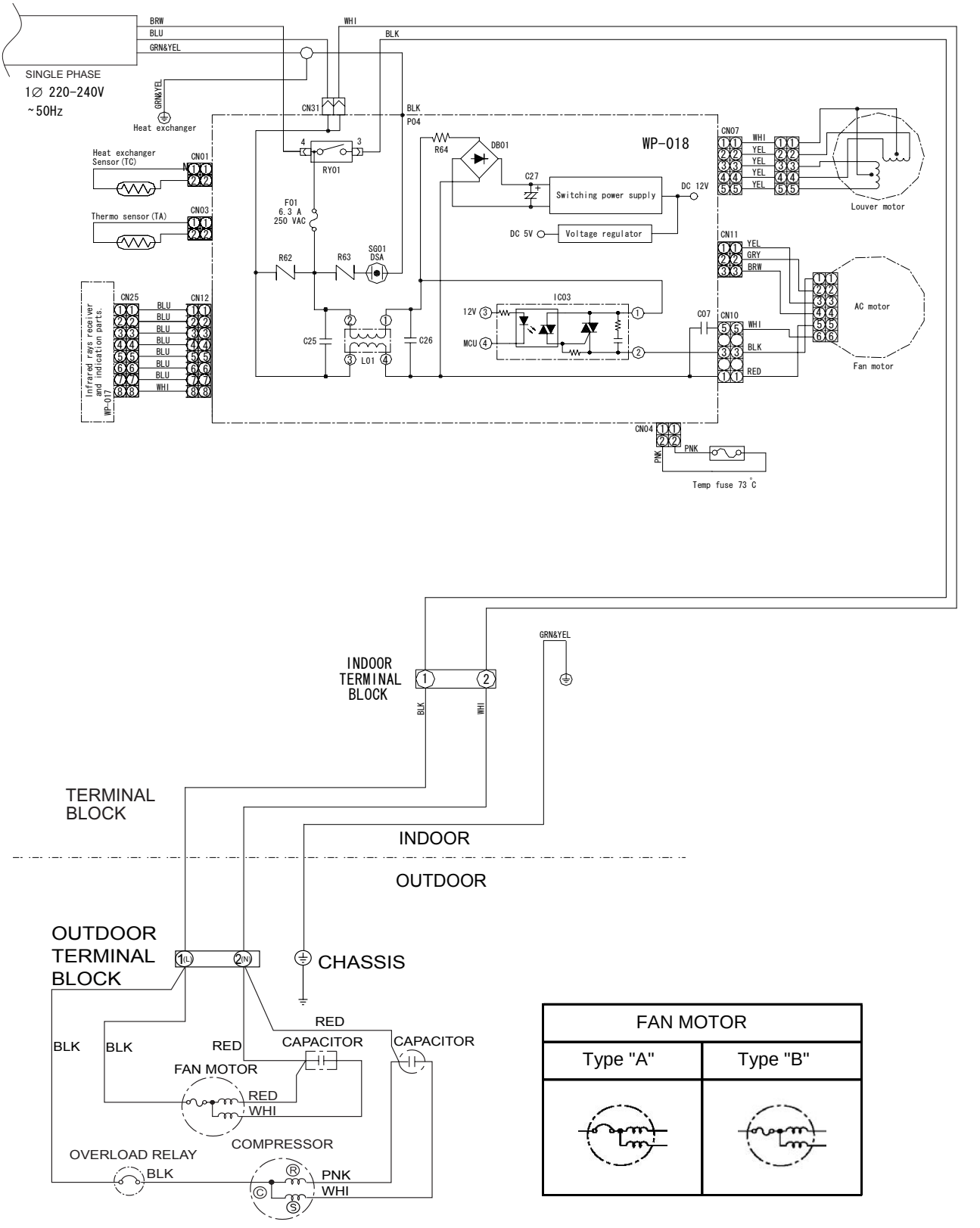
2-1. Indoor Unit



2-2. Outdoor Unit



3. WIRING DIAGRAM



FAN MOTOR	
Type "A"	Type "B"

4. SPECIFICATION OF ELECTRICAL PARTS

4-1. Indoor Unit

No.	Parts name	Type	Specifications
1	Fan motor (for indoor)	AFS-220-20-4AR	AC Motor with 145 °C thermo fuse
2	Thermo sensor (TA-sensor)		10kΩ at 25℃
3	Switching power supply (T01)	ST-001	
4	Microcontroller unit (IC30)	TMP87CM40ANG-6P68	
5	Heat exchanger sensor (TC-sensor)		10kΩ at 25℃
6	Line filter (L01)	LC*SS11V-06270	27mH, 600mA
7	Bridge rectifier (DB01)	DB105G	1A, 600 V
8	Capacitor (C27)	EKMH401VSN470MP20S	47μF, 400 V
9	Fuse (F01)	BET6.3A	6.3A, 250VAC
10	Varistor (R62, R63)	SR561K14DL	560 V
11	Resistor (R64)	RF-2TK5R6	5.6Ω, 2 W
12	Louver motor	MP24ZCT	12VDC
13	Relay (Comp., RY01)	G4A-1A-E-CA	Rating 20A/AC250 V, 12VDC

4-2. Outdoor Unit (RAS-07S2AX-1)

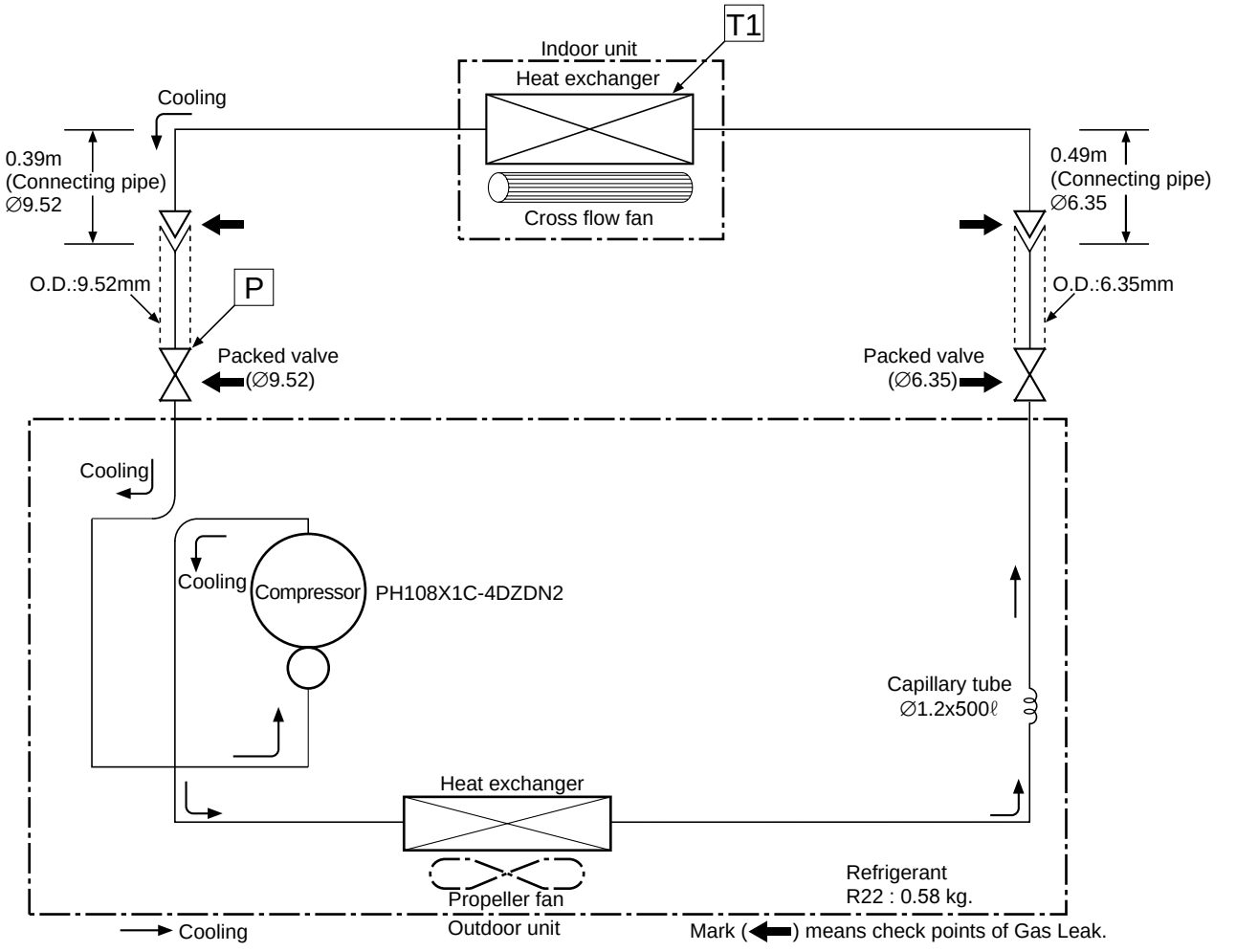
<table>
<tr><th></th><th></th><th></th><th colspan="3">Specifications</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Compressor</td><td rowspan="3">PH108X1C-4DZDN2</td><td colspan="3">Output (Rated) 605W, 2 poles, 1 phase, 220 - 240V~, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>C-R</td><td>C-S</td></tr>
<tr><td>(at 20ºC)</td><td>4.84</td><td>4.40</td></tr>
<tr><td rowspan="6">2</td><td rowspan="6">Fan motor (for outdoor)</td><td rowspan="3">WLF-240-20A
(Type "A")</td><td colspan="3">Output (Rated) 20 W, 6 poles, 1 phase, 220 - 240 V~, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>Red-Black</td><td>White-Black</td></tr>
<tr><td>(at 20ºC)</td><td>410</td><td>435</td></tr>
<tr><td rowspan="3">SKF-240-20B
(Type "B")</td><td colspan="3">Output (Rated) 20 W, 6 poles, 1 phase, 220 - 240 V, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>Red-Black</td><td>White-Black</td></tr>
<tr><td>(at 20ºC)</td><td>235.2</td><td>260.1</td></tr>
<tr><td>3</td><td>Running capacitor
(for fan motor)</td><td>DS451155NPQB</td><td colspan="3">AC 450 V~, 1.5μF</td></tr>
<tr><td>4</td><td>Running capacitor
(for compressor)</td><td>RS44B256U0213S</td><td colspan="3">AC 440 V~, 25μF</td></tr>
<tr><td>5</td><td>Overload relay</td><td>JMRA99208-9102</td><td colspan="3">U/T : 4.2A (80ºC), Open : 135±5ºC, Close : 69±11ºC</td></tr>
</table>

4-3. Outdoor Unit (RAS-09SASX-1)

<table>
<tr><th>No.</th><th>Parts name</th><th>Type</th><th colspan="3">Specifications</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Compressor</td><td rowspan="3">QK164PBA</td><td colspan="3">Output (Rated) 780W, 2 poles, 1 phase, 220 - 240 V~, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>C-R</td><td>C-S</td></tr>
<tr><td>(at 20ºC)</td><td>3.51</td><td>3.67</td></tr>
<tr><td rowspan="6">2</td><td rowspan="6">Fan motor (for outdoor)</td><td rowspan="3">WLF-240-20A
(Type "A")</td><td colspan="3">Output (Rated) 20 W, 6 poles, 1 phase, 220 - 240 V~, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>Red-Black</td><td>White-Black</td></tr>
<tr><td>(at 20ºC)</td><td>410</td><td>435</td></tr>
<tr><td rowspan="3">SKF-240-20B
(Type "B")</td><td colspan="3">Output (Rated) 20 W, 6 poles, 1 phase, 220 - 240 V, 50Hz</td></tr>
<tr><td>Winding resistance (Ω)</td><td>Red-Black</td><td>White-Black</td></tr>
<tr><td>(at 20ºC)</td><td>235.2</td><td>260.1</td></tr>
<tr><td>3</td><td>Running capacitor
(for fan motor)</td><td>DS451155NPQB</td><td colspan="3">AC 450 V~, 1.5μF</td></tr>
<tr><td>4</td><td>Running capacitor
(for compressor)</td><td>RS44B356U0215S</td><td colspan="3">AC 440 V~, 35μF</td></tr>
<tr><td>5</td><td>Overload relay</td><td>LPAP960B</td><td colspan="3">U/T : 6.1A (80ºC), Open : 135±5ºC, Close : 75±11ºC</td></tr>
</table>

5. REFRIGERATION CYCLE DIAGRAM

5-1. RAS-07SKSX-1 / RAS-07S2AX-1

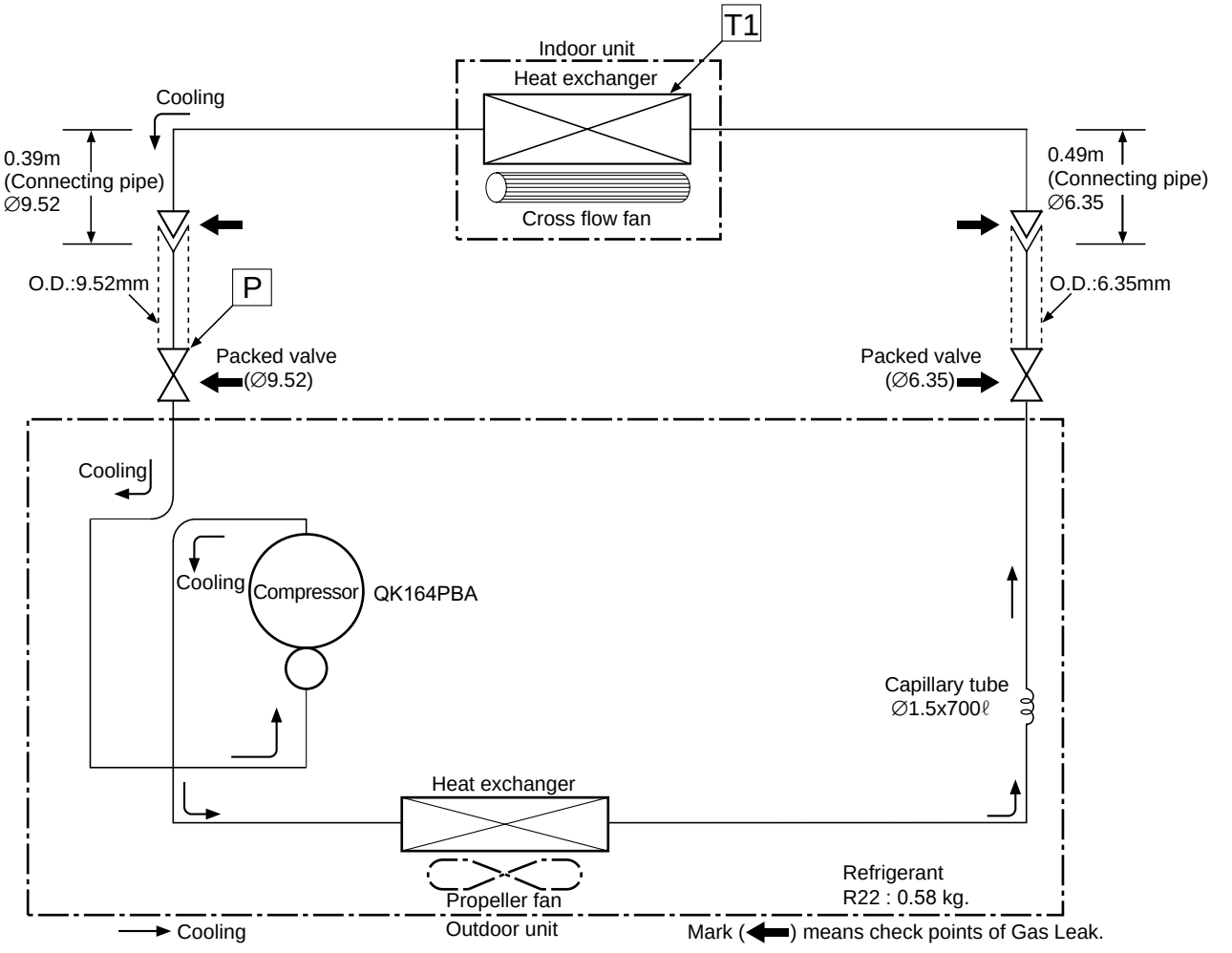


50Hz		Standard pressure P (MPaG)	Surface temp. of heat exchanger interchanging pipe T1 (°C)	Fan speed (indoor)	Ambient temp. conditions DB/WB (°C)	
					Indoor	Outdoor
Cooling	Standard	0.57	13.0	High	27/19	35/24
	Overload	0.68	17.5	High	32/23	43/26
	Low temperature	0.42	4.0	Low	21/15	21/15

Note

- Measure the heat exchanger temperature at the center of U-bend. (By means of TC sensor)

5-2. RAS-09SKSX-1 / RAS-09SASX-1

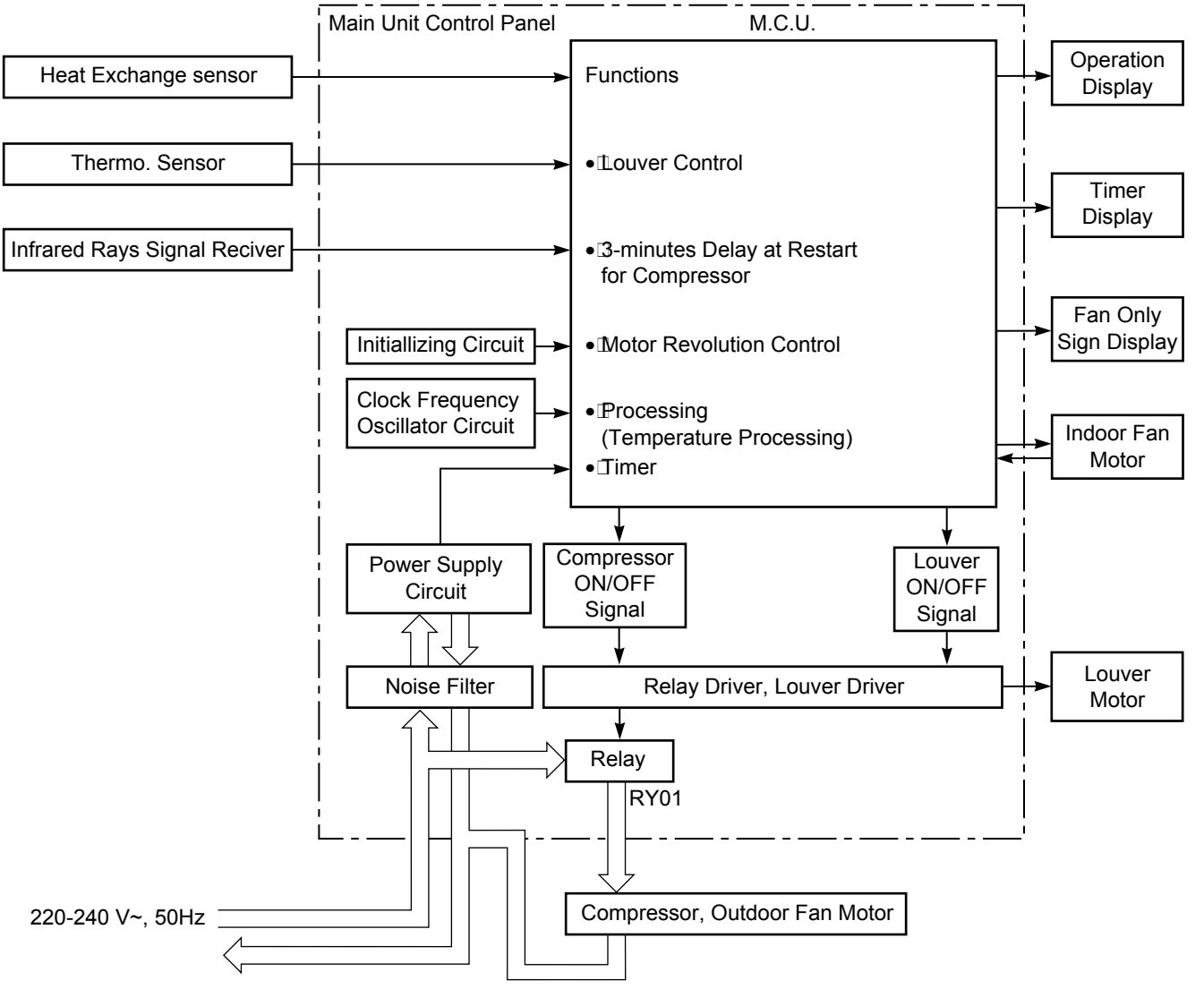


50Hz		Standard pressure P (MPaG)	Surface temp. of heat exchanger interchanging pipe T1 (°C)	Fan speed (indoor)	Ambient temp. conditions DB/WB (°C)	
					Indoor	Outdoor
Cooling	Standard	0.50	11.0	High	27/19.5	35/24
	Overload	0.60	15.0	High	32/23	43/26
	Low temperature	0.40	2.2	Low	21/15	21/15

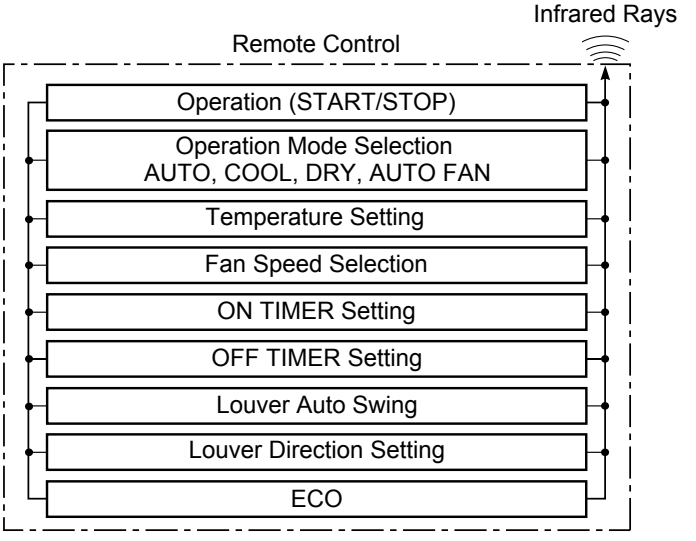
Note

- Measure the heat exchanger temperature at the center of U-bend. (By means of TC sensor)

6. CONTROL BLOCK DIAGRAM



REMOTE CONTROL

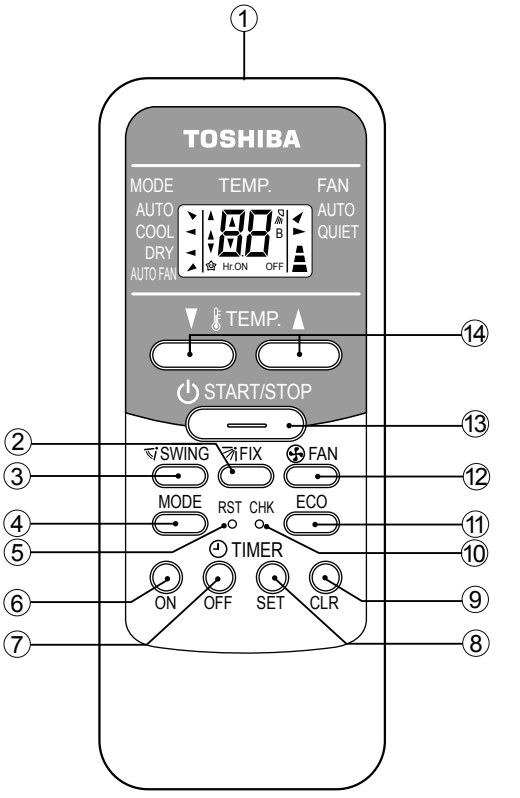


7. OPERATION DESCRIPTION

7-1. Remote control

7-1-1. Function of Push Putton

① Infrared signal emitter
② Set louver button (FIX)
③ Auto Louver button (SWING)
④ Mode select button (MODE)
⑤ Reset button (RST)
⑥ On timer button (ON)
⑦ Off timer button (OFF)
⑧ Reserve button (SET)
⑨ Cancel button (CLR)
⑩ Check button (CHK)
⑪ ECO button (ECO)
⑫ Fan speed button (FAN)
⑬ Start/Stop button (START/STOP)
⑭ Temperature button (▼🌡▲)



7-1-2. Display of Remote Control

All indications, except for the clock time indicator, are displayed by pressing the ⏻ button.

1. Transmission mark
This transmission mark ▲ indicates when the remote controller transmits signals to the indoor unit.

2. Mode indicator
Indicates the current operation mode.
(AUTO, COOL, DRY and AUTO FAN)

3. Temperature indicator
Indicates the temperature setting.
(17°C to 30°C)

4. ECO indicator
Indicates when the ECO is in activated.
Press the ECO button to start and press it again to stop operate.

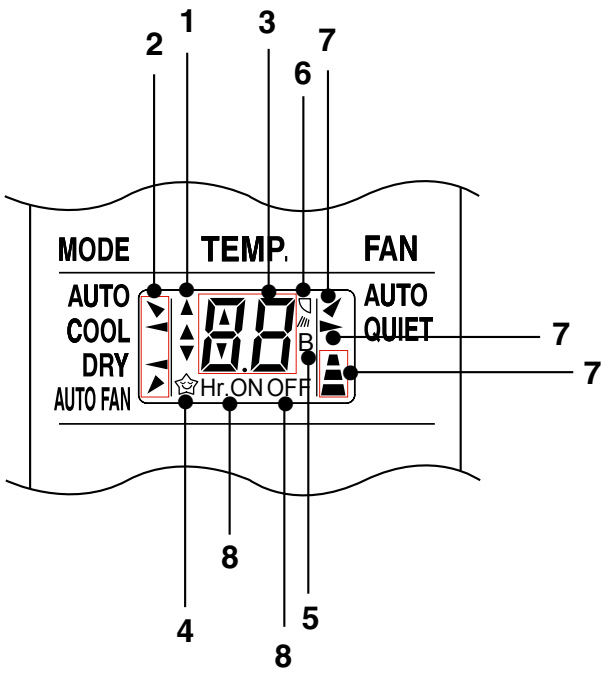
5. A, B change indicator remote controller
When the remote controller switching function is set, "B" appears in the remote controller display (When the remote controller seting is "A", there is no indication at this position.)

6. Swing
Indicate when louver is swing.
Press swing button to start the swing operation and press it again to stop the swing operation.

7. FAN speed indicator
Indicates the selected fan speed.
AUTO, QUIET or three fan speed levels

(LOW , MED , HIGH can be shown.
Indicate Auto will be appear with Dry operation only.

8. ON/OFF TIMER indicator
Indicates when the ON/OFF TIMER operation.
(ON TIMER [Hr. ON], OFF TIMER [OFF]).



7-2. Outline of Air Conditioner Control

This is a fixed capacity type air conditioner, which uses a AC motor for an indoor fan. The AC motor drive circuit is mounted in the indoor unit. And electrical parts which operate the compressor and the outdoor fan motor, are mounted in the outdoor unit.
The air conditioner is mainly controlled by the indoor unit controller. The controller operates the indoor fan motor based upon commands transmitted by the remote control and transfers the operation commands to the outdoor unit controller.
The outdoor unit receives operation commands from the indoor unit, and operates the outdoor fan motor and the compressor.

(1) Role of indoor unit controller
The indoor unit controller receives the operation commands from the remote control and executes them.
- Temperature measurement at the air inlet of the indoor heat exchanger by the indoor temperature sensor
- Temperature measurement of the indoor heat exchanger by the heat exchanger sensor
- Louver motor control
- Indoor fan motor operation control
- LED display control
- Transferring of operation commands to the outdoor unit
- Receiving of information of the operation status and judging of the information or indication of error

(2) Role of outdoor unit controller
The outdoor unit controller receives the operation commands from the indoor controller and executes them.
- Compressor operation control
- Operation control of outdoor fan motor

} Operations according to the commands from the indoor unit

- Turning off the compressor and outdoor fan when the outdoor unit receives the shutdown command

7-2-1. Louver control

(1) Vertical air flow louver
Position of veritcal air flow louver is automatically controlled according to the operation mode.
Besides, position of vertical air flow louver can be arbitrarily set by pressing [FIX] button.
The louver position which is set by [FIX] button is stored in the microcomputer, and the louver is automatically set at the stored position for the next operation.

(2) Swing
If [SWING] button is pressed when the indoor unit is in operation, the vertical air flow louver starts swinging. When [FIX] button is pressed, it stops swinging.

7-2-2. Indoor Fan Control

The operation controls the fan speed at indoor unit side. The indoor fan (cross flow fan) is operated by the phase control induction motor. The fan rotates in 3 stages in MANUAL model, and in 5 stages in AUTO mode, respectively. (Table 7-2-1)

1) When setting the fan speed to L, M or H on the remote controller, the operation is performed with the constant speed shown in Fig. 7-2-1.

Fig (7-2-1)

Indication	Fan speed
L	Low
M	Med
H	High

2) When setting the fan speed to AUTO on the remote controller, revolution of the fan motor is controlled to the fan speed level shown in Table 1 according to the setup temperature, room temperature, and heat exchanger temperature.

3) When setting the fan speed to QUIET on the remote controller, revolution of the fan motor is controlled to the fan speed level is L-.

Table 7-2-1 Indoor fan and air flow rate

OPERATION MODE		Fan speed level															
		Cool			UH	H	M+		M		L+	L	L-	UL	SUL		
		Dry			UH	H	M+	M			L+	L	L-	UL	SUL		
Model	RAS-07SKSX-1	fan speed (rpm)	1300	1300	1300	1300	1250	1150	1100	950	950	900	800	750	700	650	500
		Air flow (m^3/h)	540	540	540	540	510	470	440	370	370	350	300	270	250	220	150
	RAS-09SKSX-1	fan speed (rpm)	1350	1350	1350	1300	1250	1180	1140	1000	980	980	900	800	750	700	550
		Air flow (m^3/h)	560	560	560	540	510	500	460	400	390	390	350	300	270	250	180

7-3. Description of Operation Mode

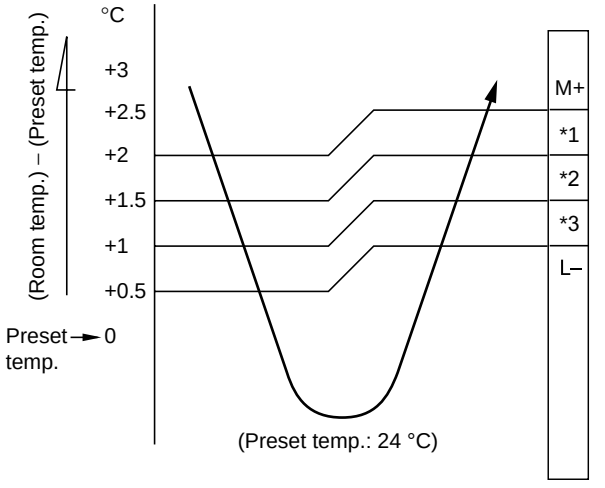
(1) When turning on the breaker, the operation lamp blinks. This means that the power is on (or the power supply is cut off.)

(2) When pressing [⏻] button on the remote control, receiving beep sounds from the indoor unit, and the next operation is performed together with opening the vertical air flow louver.

(3) Once the operation mode is set, it is memorized in the microcomputer so that the previous operation can be effected thereafter simply by pressing [⏻] button.

7-3-1. Fan only operation ([MODE] button on the remote control is set to the fan only operation.)

(1) When [FAN] button is set to AUTO, the indoor fan motor operates as shown in Fig. 7-3-1. When [FAN] button is set to LOW, MED, or HIGH the motor operates with a constant air flow.



NOTE1 : *1 : Fan speed = (M + -L) x 3/4 + L
*2 : Fan speed = (M + -L) x 2/4 + L
*3 : Fan speed = (M + -L) x 1/4 + L

(Linear approximation from M+ and L)

NOTE2 : ECO operation can not be set.

Fig. 7-3-1 Setting of air flow [FAN:AUTO]

7-3-2. Cooling operation ([MODE] button on the remote control is set to the cooling operation.)

(1) The compressor, outdoor fan and operation display lamp are controlled as shown in Fig. 7-3-2.

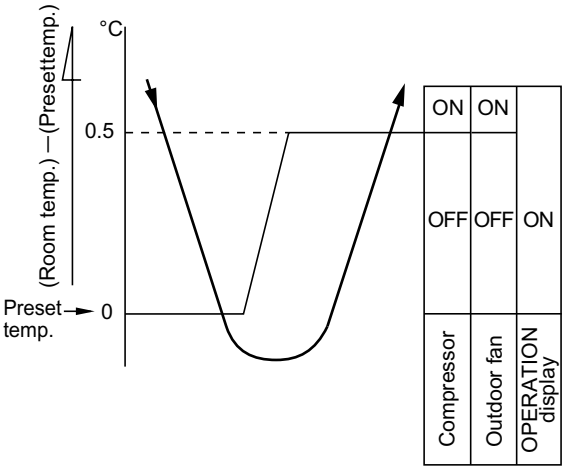
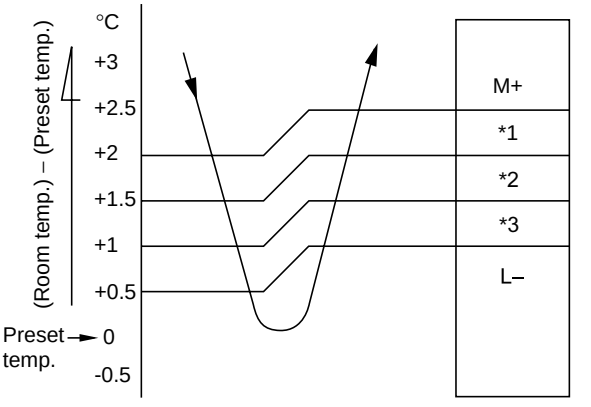


Fig. 7-3-2

(2) When [FAN] button is set to AUTO, the indoor fan motor operates as shown in Fig. 7-3-5. When [FAN] button is set to LOW, MED or HIGH the motor operates with a constant air flow.



NOTE1 : *1 : Fan speed = (M + -L) x 3/4 + L
*2 : Fan speed = (M + -L) x 2/4 + L
*3 : Fan speed = (M + -L) x 1/4 + L

(Linear approximation from M+ and L)

Fig. 7-3-3 Setting of air flow [FAN:AUTO]

7-3-3. Dry operation
([MODE] button on the remote control is set to the dry operation.)

(1) The compressor, outdoor fan and operation display on the remote control are controlled as shown in Fig. 7-3-4.

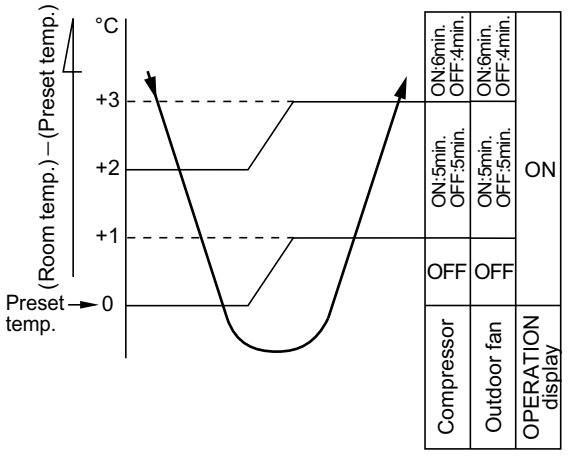


Fig. 7-3-4

(2) The microcontroller turns the compressor on and off at the regular intervals (4 to 6 minutes). While the compressor is turning off, the indoor fan motor operates in the SUPER LOW position.
The pattern of operation depending on the relation between room temperature and preset temperatures is shown in Fig. 7-3-5.

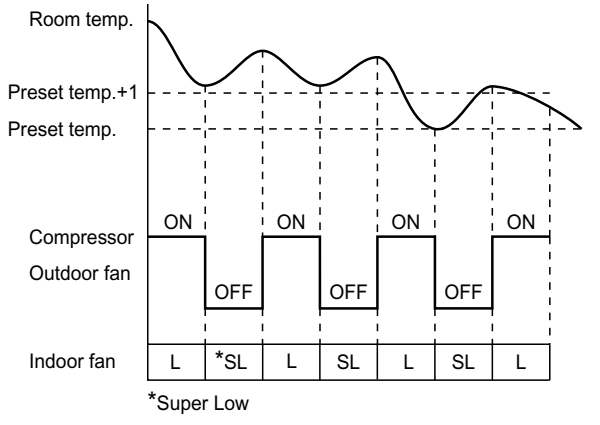


Fig. 7-3-5

(3) [FAN] button on the remote control is set to AUTO only.

(4) The ECO operation cannot be set.

7-3-4. Automatic operation
([MODE] button on the remote control is set to the automatic operation.)

(1) One of 2 operations (Cooling or Fan only) is selected according to difference between the preset temperature and the room temperature at which the automatic operation has started, as shown in Fig. 7-3-6. The Fan only operation continues until the room temperature reaches a level at which another mode is selected.

(2) Temporary Auto
When the [RESET] button on the indoor unit is pushed, the preset temperature is fixed at 24°C and the indoor unit is controlled as shown in Fig. 7-3-6.

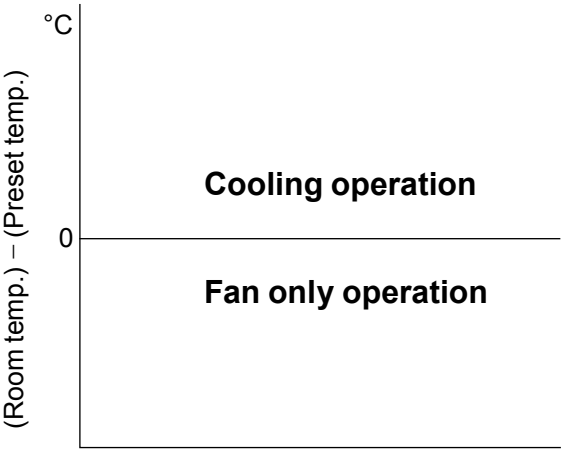


Fig. 7-3-6

7-4. Low-Temperature Limit Control

The microcontroller detects the indoor heat exchanger temperature to prevent the indoor heat exchanger from freezing.
The compressor and outdoor fan motor are controlled as shown in Fig. 7-4-1

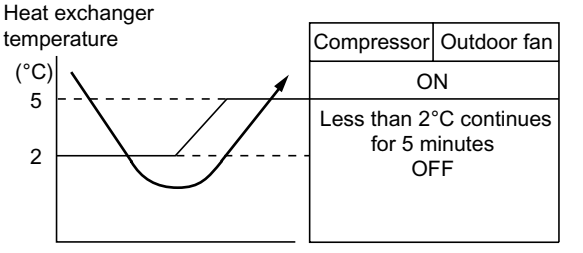


Fig. 7-4-1

7-5. Auto Restart Function

This indoor unit is equipped with an automatic restarting function which allows the unit to restart operating with the set operating conditions in the event of a power supply being accidentally shut down.
The operation will resume without warning three minutes after power is restored.

This function is not set to work when shipped from the factory. Therefore it is necessary to set it to work.

7-5-1. How to Set the Auto Restart Function

To set the auto restart function, proceed as follows:

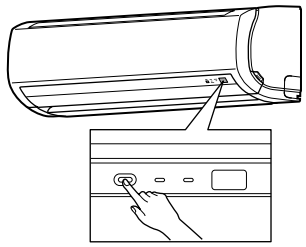
The power supply to the unit must be on ; the function will not set if the power is off.

Press the [RESET] button located in the center of the front panel continuously for three seconds.

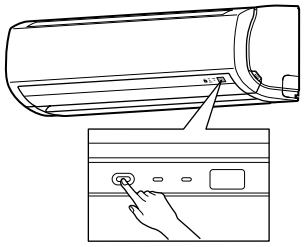
The unit receives the signal and beeps three times.

The unit then restarts operating automatically in the event of power supply being accidentally shut down.

- **When the unit is standby (Not operating)**

Operation	Motions
Press [RESET] button for more than three seconds. (Less than 10 seconds)  RESET button	The unit is on standby. ↓ The unit starts to operate. The green indicator is on. ↓ After approx. three seconds, The unit beeps three times and continues to operate. **The green indicator flashes for 5 seconds.** If the unit is not required to operate at this time, press [RESET] button once more or use the remote controller to turn it off.

- **When the unit is in operation**

Operation	Motions
Press [RESET] button for more than three seconds. (Less than 10 seconds)  RESET button	The unit is in operation. The green indicator is on. ↓ The unit stops operating. The green indicator is turned off. ↓ After approx. three seconds, The unit beeps three times. **The green indicator flashes for 5 seconds.** If the unit is required to operate at this time, press [RESET] button once more or use the remote controller to turn it on.

- While the filter check indicator is on, the RESET button has the function of filter reset betton.

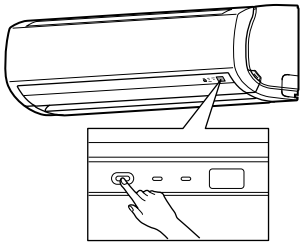
7-5-2. How to Cancel the Auto Restart Function

To cancel auto restart function, proceed as follows :

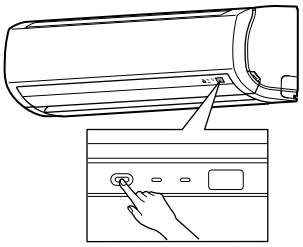
Repeat the setting procedure : the unit receives the signal and beeps three times.

The unit will be required to be turned on with the remote controller after the main power supply is turned off.

• When the system is on stand-by (not operating)

Operation	Motions
Press [RESET] button for more than three seconds. (Less than 10 seconds)  RESET button	The unit is on standby. ↓ The unit starts to operate. The green indicator is on. ↓ After approx. three seconds, The unit beeps three times and continues to operate. If the unit is not required to operate at this time, press [RESET] button once more or use the remote controller to turn it off.

• When the system is operating

Operation	Motions
Press [RESET] button for more than three seconds. (Less than 10 seconds)  RESET button	The unit is in operation. The green indicator is on. ↓ The unit stops operating. The green indicator is turned off. ↓ After approx. three seconds, The unit beeps three times. If the unit is required to operate at this time, press [RESET] button once more or use the remote controller to turn it on.

7-5-3. Power Failure During Timer Operation

When the unit is turned off because of power failure during timer operation, the timer operation is cancelled. In that case, set the timer operation again.

NOTE :

The Everyday Timer is reset while a command signal can be received from the remote controller even if it stopped due to a power failure.

8. INSTALLATION PROCEDURE

8-1. Safety Cautions

For general public use

Power supply cord of parts of appliance for Outdoor use shall be at least polychloroprene sheathed flexible cord (design H07 RN-F), or cord designation 245 IEC66.(Shall be installed in accordance with national wiring regulations.)

CAUTION **To Disconnect the Appliance from the Main Power Supply**

This appliance must be connected to the main power supply by means of a circuit breaker or a switch with a contact separation of at least 3 mm in all poles.
If this is not possible, a power supply plug with earth must be used. This plug must be easily accessible after installation. The plug must be disconnected from the power supply socket in order to disconnect the appliance completely from the mains.

DANGER

- FOR USE BY QUALIFIED PERSONS ONLY.
- TURN OFF MAIN POWER SUPPLY BEFORE ATTEMPTING ANY ELECTRICAL WORK. MAKE SURE ALL POWER SWITCHES ARE OFF. FAILURE TO DO SO MAY CAUSE ELECTRIC SHOCK.
- CONNECT THE CONNECTING CABLE CORRECTLY. IF THE CONNECTING CABLE IS CONNECTED WRONGLY, ELECTRIC PARTS MAY BE DAMAGED.
- CHECK THE EARTH WIRE THAT IT IS NOT BROKEN OR DISCONNECTED BEFORE INSTALLATION.
- DO NOT INSTALL NEAR CONCENTRATIONS OF COMBUSTIBLE GAS OR GAS VAPORS. FAILURE TO FOLLOW THIS INSTRUCTION CAN RESULT IN FIRE OR EXPLOSION.
- TO PREVENT OVERHEATING THE INDOOR UNIT AND CAUSING A FIRE HAZARD, PLACE THE UNIT WELL AWAY (MORE THAN 2 M) FROM HEAT SOURCES SUCH AS RADIATORS, HEATORS, FURNACE, STOVES, ETC.
- WHEN MOVING THE AIR-CONDITIONER FOR INSTALLING IT IN ANOTHER PLACE AGAIN, BE VERY CAREFUL NOT TO GET THE SPECIFIED REFRIGERANT (R410A) WITH ANY OTHER GASEOUS BODY INTO THE REFRIGERATION CYCLE. IF AIR OR ANY OTHER GAS IS MIXED IN THE REFRIGERANT, THE GAS PRESSURE IN THE REFRIGERATION CYCLE BECOMES ABNORMALLY HIGH AND IT RESULTINGLY CAUSES BURST OF THE PIPE AND INJURIES ON PERSONS.
- IN THE EVENT THAT THE REFRIGERANT GAS LEAKS OUT OF THE PIPE DURING THE INSTALLATION WORK, IMMEDIATELY LET FRESH AIR INTO THE ROOM. IF THE REFRIGERANT GAS IS HEATED BY FIRE OR SOMETHING ELSE, IT CAUSES GENERATION OF POISONOUS GAS.

WARNING

- Never modify this unit by removing any of the safety guards or bypassing any of the safety interlock switches.
- Do not install in a place which cannot bear the weight of the unit.
  Personal injury and property damage can result if the unit falls.
- Before doing the electrical work, attach an approved plug to the power supply cord.
  Also, make sure the equipment is properly earthed.
- Appliance shall be installed in accordance with national wiring regulations.
  If you detect any damage, do not install the unit. Contact your TOSHIBA dealer immediately.

CAUTION

- Exposure of unit to water or other moisture before installation could result in electric shock.
  Do not store it in a wet basement or expose to rain or water.
- After unpacking the unit, examine it carefully for possible damage.
- Do not install in a place that can increase the vibration of the unit. Do not install in a place that can amplify the noise level of the unit or where noise and discharged air might disturb neighbors.
- To avoid personal injury, be careful when handling parts with sharp edges.
- Please read this installation manual carefully before installing the unit. It contains further important instructions for proper installation.

REQUIREMENT OF REPORT TO THE LOCAL POWER SUPPLIER

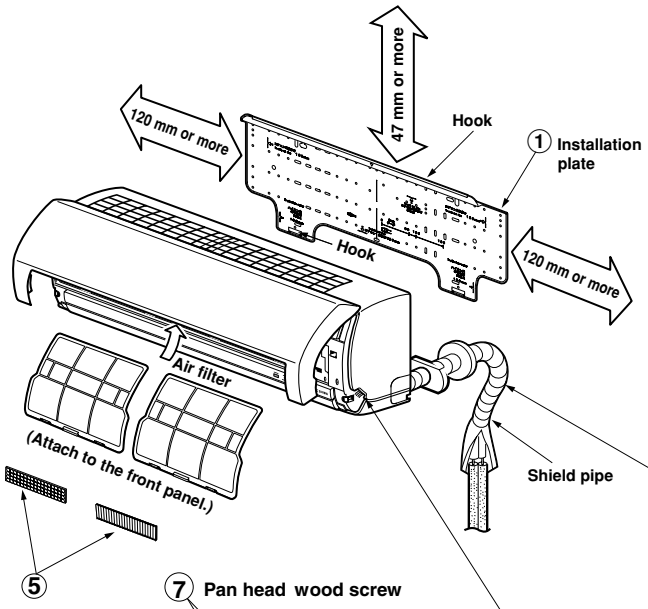
Please make absolutely sure that the installation of this appliance is reported to the local power supplier before installation. If you experience any problems, or if the installation is not accepted by the supplier, the service agency will take adequate countermeasures.

Remark per EMC Directive 89/336/EEC

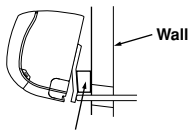
To prevent flicker impressions during the start of the compressor (technical process) following installation conditions do apply.

1. The power connection for the air conditioner has to be done at the main power distribution. This distribution has to be of an impedance.
   Normally the required impedance is reached at a 32A fusing point. Air conditioner fuse has to be 16A max.!
2. No other equipment should be connected to this power line.
3. For detailed installation acceptance, please contact your power supplier whether its restriction does apply for products like washing machines, air conditioners or electrical ovens.
4. For power details of the air conditioner, refer to the rating plate of the product.

8-2. Installation Diagram of Indoor and Outdoor Units

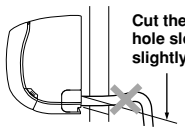


For the rear left and left piping



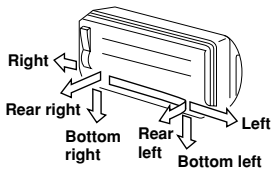
Insert the cushion between the indoor unit and wall, and tilt the indoor unit for better operation.

Do not allow the drain hose to get slack.

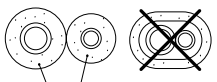


Make sure to run the drain hose sloped downward.

The auxiliary piping can be connected to the left, rear left, rear right, right, bottom right or bottom left.

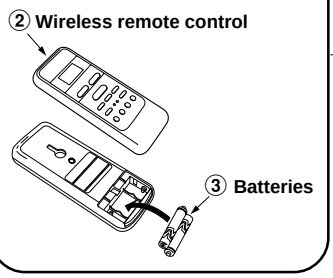


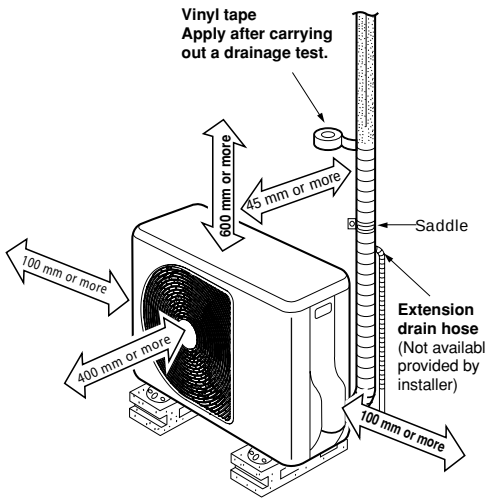
Insulate the refrigerant pipes separately with insulation, not together.



Before installing the wireless remote control

- **With the remote control cover open, load the batteries supplied correctly, observing their polarity.**





8-3. Installation

8-3-1. Optional installation parts

Part Code	Parts name	Q'ty
Ⓐ	Refrigerant piping Liquid side : ∅6.35 mm Gas side : ∅9.52 mm	One each
Ⓑ	Pipe insulating material (polyethylene foam, 6 mm thick)	1
Ⓒ	Putty, PVC tapes	One each

<Fixing bolt arrangement of outdoor unit>

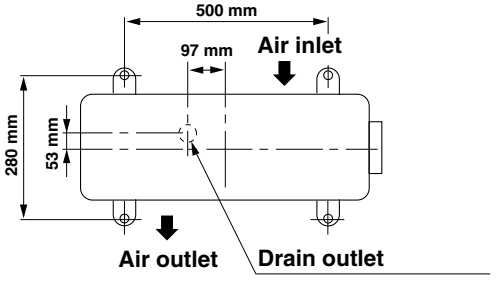
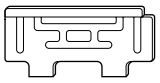
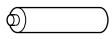
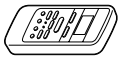
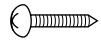


Fig. 8-3-1

- Secure the outdoor unit with fixing bolts and nuts if the unit is likely to be exposed to a strong wind.
- Use ∅8 mm or ∅10 mm anchor bolts and nuts.

8-3-2. Accessory and installation parts

Part No.	Part name (Q'ty)	Part No.	Part name (Q'ty)	Part No.	Part name (Q'ty)
①	 Installation plate x 1	③	 Battery x 2	⑤	Active Carbon-Catechin filter x 2
②	 Wireless remote control x 1	④	Remote control holder x 1	⑥	 Mounting screw ∅4 x 25ℓx 6
				⑦	Pan head wood screw ∅3.1 x 16ℓx 2

Others

Name
Owner's manual
Installation manual

8-4. Indoor Unit

8-4-1. Installation place

- A place which provides the spaces around the indoor unit as shown in the above diagram.
- A place where there is no obstacle near the air inlet and outlet.
- A place that allows easy installation of the piping to the outdoor unit.
- A place which allows the front panel to be opened.

CAUTION

- Direct sunlight to the indoor unit's wireless receiver should be avoided.
- The microprocessor in the indoor unit should not be too close to RF noise sources. (For details, see the owner's manual.)

<Remote control>

- A place where there are no obstacles such as a curtain that may block the signal from the indoor unit.
- Do not install the remote control in a place exposed to direct sunlight or close to a heating source, such as a stove.
- Keep the remote control at least 1 m apart from the nearest TV set or stereo equipment. (This is necessary to prevent image disturbances or noise interference.)
- The location of the remote control should be determined as shown below.

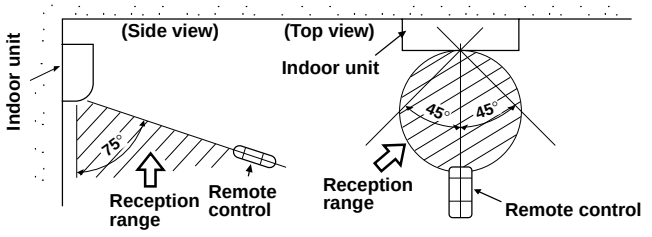


Fig. 8-4-1

8-4-2. Cutting a hole and mounting installation plate

<Cutting a hole>

When installing the refrigerant pipes from the rear.

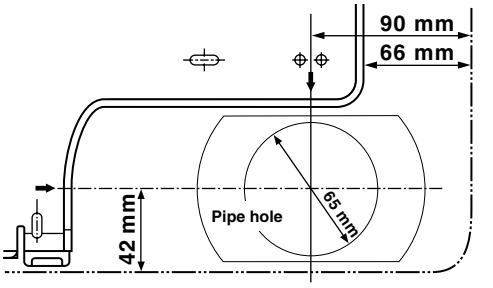


Fig. 8-4-2

1. After determining the pipe hole position on the mounting plate (➡), drill the pipe hole (∅65 mm) at a slight downward slant to the outdoor side.

NOTE

- When drilling a wall that contains a metal lath, wire lath or metal plate, be sure to use a pipe hole brim ring sold separately.

<Mounting the installation plate>

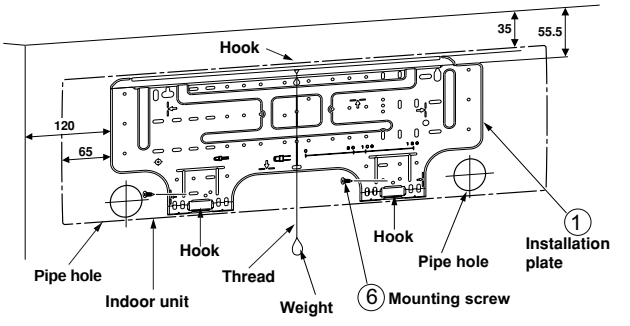


Fig. 8-4-3

<When the installation plate is directly mounted on the wall>

1. Securely fit the installation plate onto the wall by screwing it in the upper and lower parts to hook up the indoor unit.
2. To mount the installation plate on a concrete wall with anchor bolts, utilize the anchor bolt holes as illustrated in the above figure.
3. Install the installation plate horizontally in the wall.

CAUTION

When installing the installation plate with a mounting screw, do not use the anchor bolt hole. Otherwise the unit may fall down and result in personal injury and property damage.

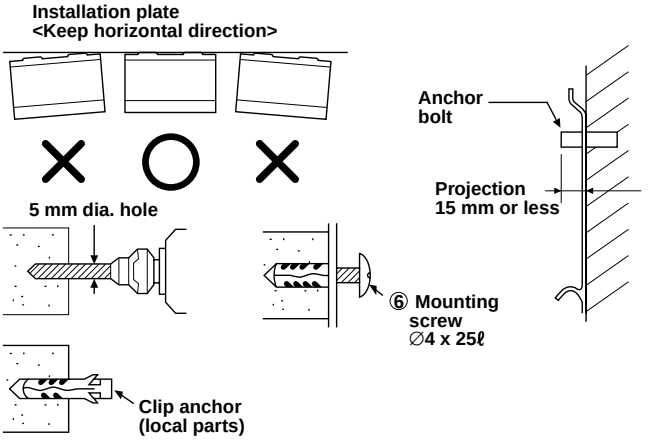


Fig. 8-4-4

CAUTION

Failure to firmly install the unit may result in personal injury and property damage if the unit falls.

- In case of block, brick, concrete or similar type walls, make 5 mm dia. holes in the wall.
- Insert clip anchors for appropriate⑥mounting screws.

NOTE

- Secure four corners and lower parts of the installation plate with 4 to 6 mounting screws to install it.

8-4-3. Electrical work

1. The supply voltage must be the same as the rated voltage of the air conditioner.
2. Prepare the power source for exclusive use with the air conditioner.

CAUTION

- This appliance can be connected to the mains in either of the following two ways.
  (1) Connection to fixed wiring:
  A switch or circuit breaker which disconnects all poles and has a contact separation of at least 3 mm must be incorporate in the fixed wiring. An approved circuit breaker or switches must used.
  (2) Connection with power supply plug:
  Attach power supply plug with power cord and plug it into wall outlet. An approved power supply cord and plug must be used.

NOTE

- Ensure all wiring is used within its electrical rating.

Model	RAS-07,09SKSX-1
Power source	50 Hz, 220 – 240 V Single phase
Maximum running current	7.5A
Plug socket & fuse rating	16A
Power cord	1 mm^2 or more

<How to connect the connecting cable>

Wiring of the connecting cable can be carried out without removing the front panel.

1. Remove the air inlet grille.
   Open the air inlet grille upward and pull it toward you.
2. Remove the terminal cover and cord clamp.
3. Insert the connecting cable (according to the local cords) into the pipe hole on the wall.
4. Take out the connecting cable through the cable slot on the rear panel so that it protrudes about 15 cm from the front.
5. Insert the connecting cable fully into the terminal block and secure it tightly with screws.
6. Tightening torque : 1.2 N·m (0.12 kgf·m)
7. Secure the connecting cable with the cord clamp.
8. Fix the terminal cover, rear plate bushing and air inlet grille on the indoor unit.

CAUTION

- Be sure to refer to the wiring system diagram labeled inside the front panel.
- Check local electrical cords and also any specific wiring instructions or limitations.

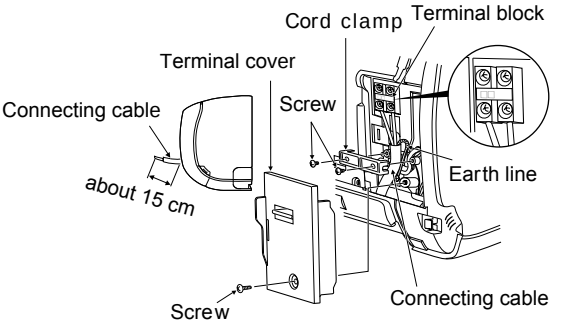
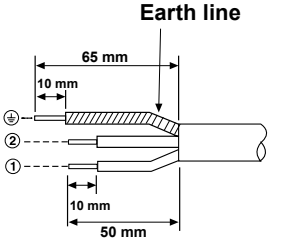


Fig. 8-4-5



Stripping length of the connecting cable

Fig. 8-4-6

NOTE

- Use stranded wire only.
- Wire type : H07 RN-F or more

<How to install the air inlet grille on the indoor unit>

- When attaching the air inlet grille, the contrary of the removed operation is performed.

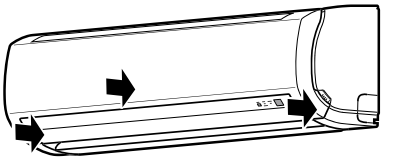
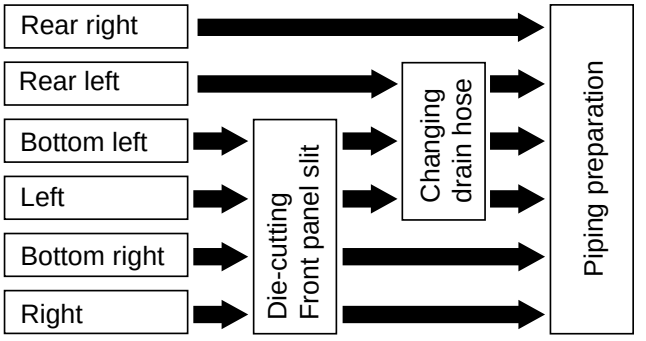


Fig. 8-4-7

8-4-4. Piping and drain hose installation

<Piping and drain hose forming>

* Since dewing results in a machine trouble, make sure to insulate both the connecting pipes. (Use polyethylene foam as insulating material.)



1. Die-cutting Front panel slit

For leftward connection, cut out slit on the left side of the front panel. (A knife will produce splinters, so use nippers.)

2. Changing drain hose

For leftward connection, bottom leftward connection and rear leftward connection's piping, it is necessary to change the drain hose and drain cap.

How to remove the drains cap

Clip drain cap by needle-nose plier, and pull out.

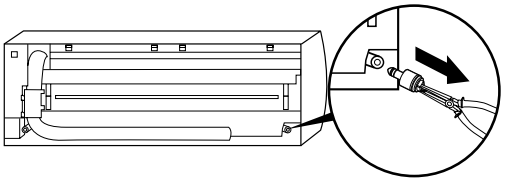


Fig. 8-4-8

How to install the drain hose

Firmly insert drain hose connecting part until hitting on a heat insulator.

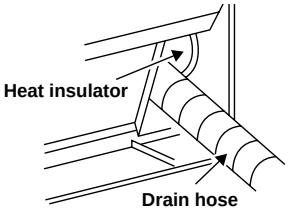


Fig. 8-4-9

How to fix the drains cap

1) Insert hexagonal wrench (4 mm) in a center head.

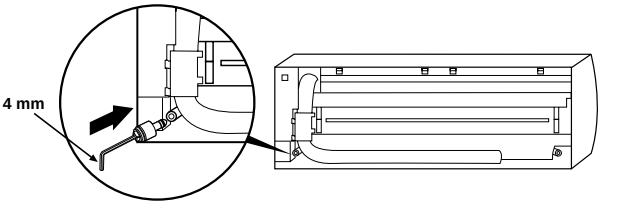


Fig. 8-4-10

2) Firmly insert drains cap.

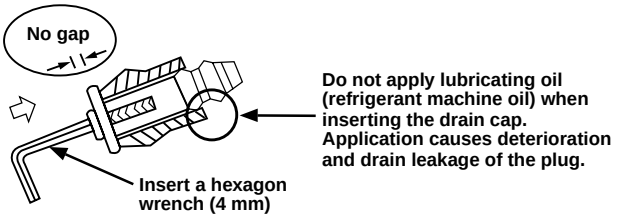

No gap
Do not apply lubricating oil (refrigerant machine oil) when inserting the drain cap. Application causes deterioration and drain leakage of the plug.
Insert a hexagon wrench (4 mm)

Fig. 8-4-11

CAUTION

Firmly insert the drain hose and drain cap; otherwise, water may leak.

<In case of right or left piping>

- After scribing slits of the front panel with a knife or a making-off pin, cut them with a pair of nippers or an equivalent tool.

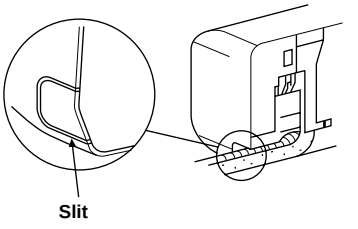


Fig. 8-4-12

<In case of bottom right or bottom left piping>

- After scribing slits of the front panel with a knife or a making-off pin, cut them with a pair of nippers or an equivalent tool.

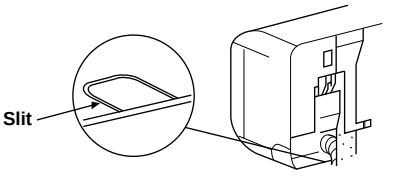


Fig. 8-4-13

<Left-hand connection with piping>

Bend the connecting pipe so that it is laid within 43 mm above the wall surface. If the connecting pipe is laid exceeding 43 mm above the wall surface, the indoor unit may unstably be set on the wall. When bending the connecting pipe, make sure to use a spring bender so as not to crush the pipe.

Bend the connection pipe within a radius of 30 mm.

To connect the pipe after installation of the unit (figure)

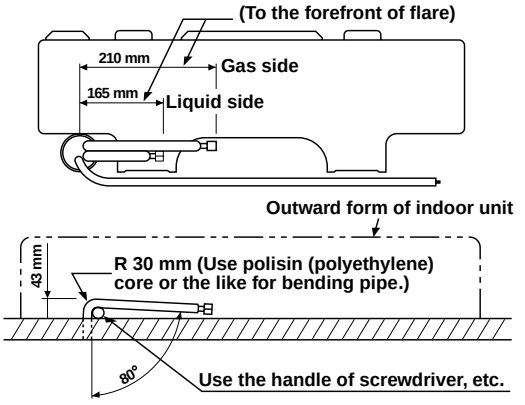

(To the forefront of flare)
210 mm
Gas side
165 mm
Liquid side
Outward form of indoor unit
43 mm
R 30 mm (Use polisin (polyethylene) core or the like for bending pipe.)
80°
Use the handle of screwdriver, etc.

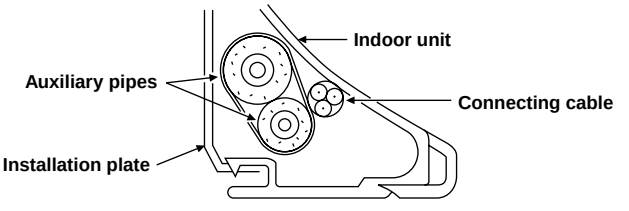
Fig. 8-4-14

NOTE

If the pipe is bent incorrectly, the indoor unit may unstably be set on the wall.
After passing the connecting pipe through the pipe hole, connect the connecting pipe to the auxiliary pipes and wrap the facing tape around them.

CAUTION

- Bind the auxiliary pipes (two) and connecting cable with facing tape tightly. In case of leftward piping and rear-leftward piping, bind the auxiliary pipes (two) only with facing tape.



- Carefully arrange pipes so that any pipe does not stick out of the rear plate of the indoor unit.
- Carefully connect the auxiliary pipes and connecting pipes to each other and cut off the insulating tape wound on the connecting pipe to avoid double-taping at the joint, moreover, seal the joint with the vinyl tape, etc.
- Since dewing results in a machine trouble, make sure to insulate both the connecting pipes. (Use polyethylene foam as insulating material.)
- When bending a pipe, carefully do it, not to crush it.

8-4-5. Indoor unit fixing

1. Pass the pipe through the hole in the wall, and hook the indoor unit on the installation plate at the upper hooks.
2. Swing the indoor unit to right and left to confirm that it is firmly hooked up on the installation plate.
3. While pressing the indoor unit onto the wall, hook it at the lower part on the installation plate. Pull the indoor unit toward you to confirm that it is firmly hooked up on the installation plate.

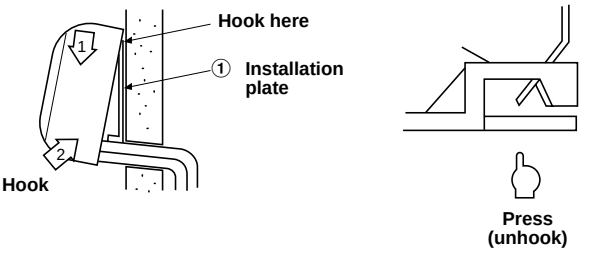


Fig. 8-4-15

- For detaching the indoor unit from the installation plate, pull the indoor unit toward you while pushing its bottom up at the specified parts.

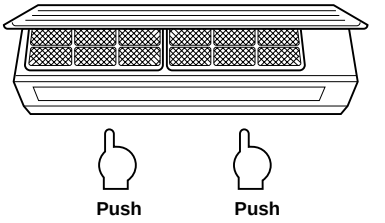


Fig. 8-4-16

8-4-6. Drainage

1. Run the drain hose sloped downwards.

NOTE

- Hole should be made at a slight downward slant on the outdoor side.

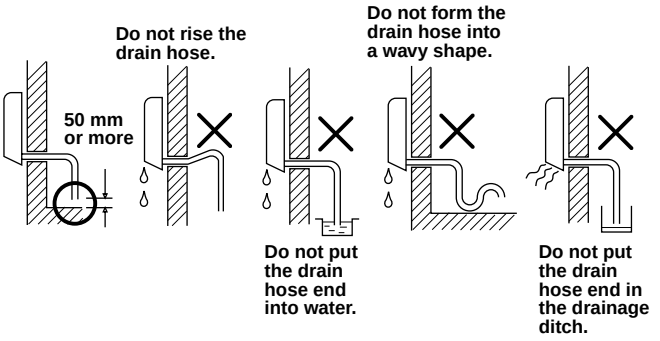

Do not rise the drain hose.
Do not form the drain hose into a wavy shape.
50 mm or more
Do not put the drain hose end into water.
Do not put the drain hose end in the drainage ditch.

Fig. 8-4-17

2. Put water in the drain pan and make sure that the water is drained out of doors.
3. When connecting extension drain hose, insulate the connecting part of extension drain hose with shield pipe.

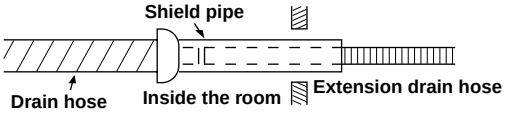


Fig. 8-4-18

CAUTION

Arrange the drain pipe for proper drainage from the unit.
Improper drainage can result in dew-dropping.

This air conditioner has the structure designed to drain water collected from dew, which forms on the back of the indoor unit, to the drain pan.
Therefore, do not store the power cord and other parts at a height above the drain guide.

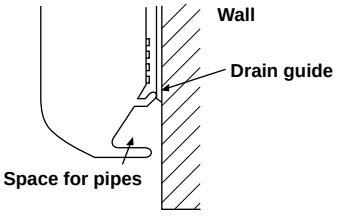


Fig. 8-4-19

8-5. Outdoor Unit

8-5-1. Installation place

- A place which provides the spaces around the outdoor unit as shown in the left diagram.
- A place which can bear the weight of the outdoor unit and does not allow an increase in noise level and vibration.
- A place where the operation noise and discharged air do not disturb your neighbors.
- A place which is not exposed to a strong wind.
- A place free of a leakage of combustible gases.
- A place which does not block a passage.
- When the outdoor unit is to be installed in an elevated position, be sure to secure its feet.
- An allowable length of the connecting pipe is up to 10 m.
- An allowable height level is up to 5 m.
- A place where the drain water does not raise any problem.

CAUTION

1. Install the outdoor unit without anything blocking the air discharging.
2. When the outdoor unit is installed in a place exposed always exposed to strong wind like a coast or on a high storey of a building, secure the normal fan operation using a duct or a wind shield.
3. In particularly windy areas, install the unit such as to avoid admission of wind.
4. Installation in the following places may result in trouble.
   Do not install the unit in such places.
   - A place full of machine oil.
   - A saline-place such as the coast.
   - A place full of sulfide gas.
   - A place where high-frequency waves are likely to be generated as from audio equipment, welders, and medical equipment.

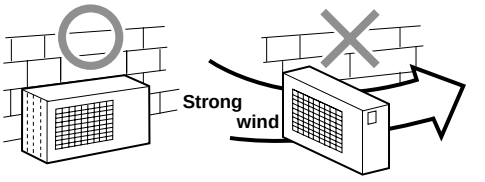


Fig. 8-5-1

8-5-2. Refrigerant piping connection

1. Cut the pipe with a pipe cutter.

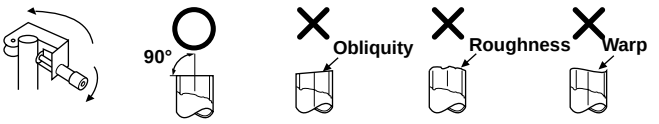


Fig. 8-5-2

2. Insert a flare nut into the pipe, and flare the pipe.
   - **Projection margin in flaring : A (Unit : mm)**

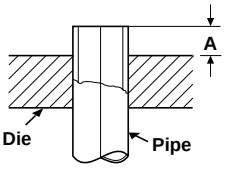


Fig. 8-5-3

Outer dia. of copper pipe	A	
	Rigid	Imperial
6.35	0.5 to 1.0	1.0 to 1.5
9.52	0.5 to 1.0	1.0 to 1.5

<Tightening connection>

Align the centers of the connecting pipes and tighten the flare nut as far as possible with your fingers. Then tighten the nut with a spanner and torque wrench as shown in the figure.

CAUTION

- Do not apply excess torque.
- Otherwise, the nut may crack depending on the conditions.

(Unit : N·m)

Outer dia. of copper pipe	Tightening torque
∅6.35	16 to 18 (1.6 to 1.8 kgf·m)
∅9.52	30 to 42 (3.0 to 4.2 kgf·m)

- **Tightening torque of flare pipe connections**

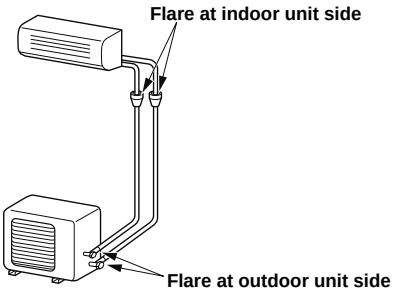


Fig. 8-5-4

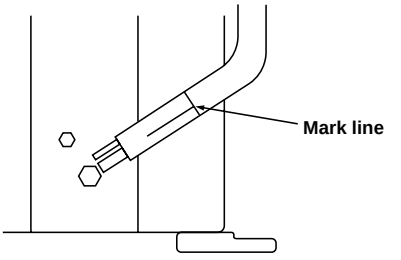


Fig. 8-5-5

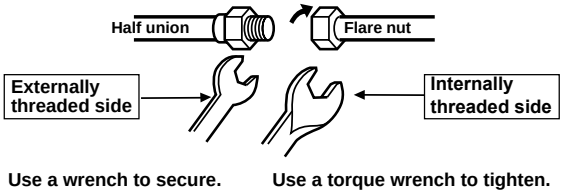


Fig. 8-5-6

CAUTION

- **KEEP IMPORTANT 4 POINTS FOR PIPING WORK**

(1) Take away dust and moisture (Inside of the connecting pipes.)
(2) Tight connection (between pipes and unit)
(3) Evacuate the air in the connecting pipes using VACUUM PUMP.
(4) Check gas leak (connected points)

8-5-3. Evacuating

After the piping has been connected to the indoor unit, you can perform the air purge together at once.

AIR PURGE
Evacuate the air in the connecting pipes and in the indoor unit using
a vacuum pump. Do not use the refrigerant in the outdoor unit.
For details, see the manual of the vacuum pump.

<Using a vacuum pump>

Be sure to use a vacuum pump with counter-flow prevention function so that inside oil of the pump does not flow backward into pipes of the air conditioner when the pump stops. (If oil inside of the vacuum pump enters into the air conditioner, which use R410A, refrigeration cycle trouble may result.)

1. Connect the charge hose from the manifold valve to the service port of the gas side packed valve.
2. Connect the charge hose to the port of the vacuum pump.
3. Open fully the low pressure side handle of the gauge manifold valve.
4. Operate the vacuum pump to start evacuating. Perform evacuating for about 15 minutes if the piping length is 20 meters. (15 minutes for 20 meters) (assuming a pump capacity of 27 liters per minute.) Then confirm that the compound pressure gauge reading is −101 kPa (76 cmHg).
5. Close the low pressure side valve handle of gauge manifold.
6. Open fully the valve stem of the packed valves (both sides of Gas and Liquid).
7. Remove the charging hose from the service port.
8. Securely tighten the caps on the packed valves.

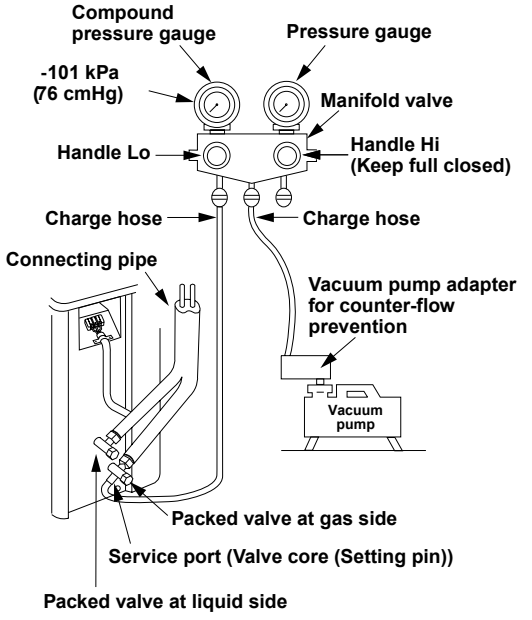


Fig. 8-5-7

<Packed valve handling precautions>

- Open the valve stem all the way out; but do not try to open it beyond the stopper.
- Securely tighten the valve stem cap with torque in the following table:

Gas side (∅9.52 mm)	30 to 42 N·m (3.0 to 4.2 kgf·m)
Liquid side (∅6.35 mm)	16 to 18 N·m (1.6 to 1.8 kgf·m)
Service port	9 to 10 N·m (0.9 to 1.0 kgf·m)

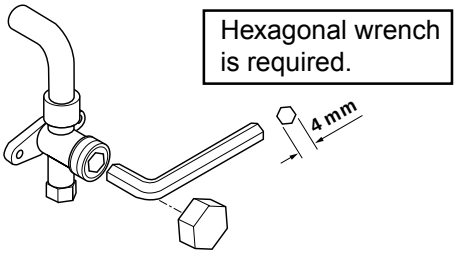


Fig. 8-5-8

8-5-4. Wiring connection

1. Remove the valve cover from the outdoor unit.
2. Connect the connecting cable to the terminal as identified with their respective matched numbers on the terminal block of indoor and outdoor unit.
3. When connecting the connecting cable to the outdoor unit terminal, make a loop as shown in the installation diagram of indoor and outdoor unit, to prevent water coming in the outdoor unit.
4. Insulate the unused cords (conductors) from any water coming in the outdoor unit. Proceed them so that they do not touch any electrical or metal parts.

<Stripping length of connecting cable>

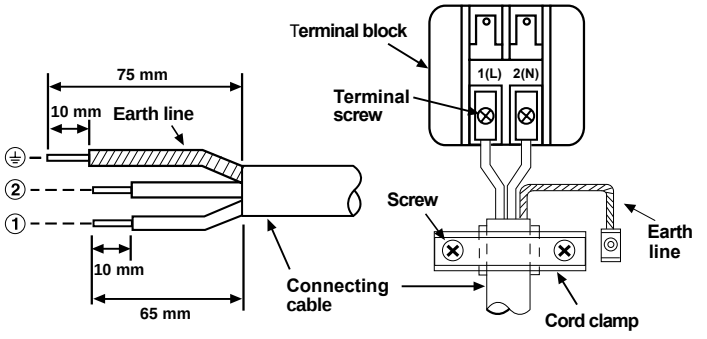


Fig. 8-5-9

CAUTION

- Wrong wiring connection may cause some electrical parts burn out.
- Be sure to comply with local codes on running the wire from indoor unit to outdoor unit (size of wire and wiring method etc.)
- Every wire must be connected firmly.

NOTE

- Wire type: H07 RN-F or 245 IEC66 (2.0 mm^2 or more)

8-6. How to Set Remote Control Selector Switch

When two indoor units ae installed in seperated rooms, there is no need to change the selector switch.

<Remote control selector switch>

- When two indoor units are installed in the same room or the adjacent two rooms, they may be controlled simultaneously with a single remote control. To prevent this, set either unit and its remote control to B setting. (Both units are set to A setting before shipment.)
- The remote control signal is not recived when the indoor unit setting is different from the remote control one.

1. Setting the remote control selector switch with the indoor unit.

1. Press RESET button on the indoor unit to turn the air conditioner ON.
2. Point the remote control at the indoor unit.

Note: 1. Repeat above step to reset Remote Control to be A.
2. Remote Control A has not “A” display.
3. Default setting of Remote Control from factory is A.

2. Set the remote control selector switch with the remote control

[B] is indicated on the liquid crystal display when setting remote control selector switch to B. [A] is not indicated on the display even if the selector switch is set to A.

1) Load the remote control with the batteries.
2) Press the [CHECK] button using something with sharp point. (The preset temperature on the remote control changes to [00].)
3) Press the [MODE] button while pressing the [CHECK] button, [B] is indicted at the right of the present temperature display.

- To reset the switch to the [A] setting, press the [MODE] button again while pressing the [CHECK] button.

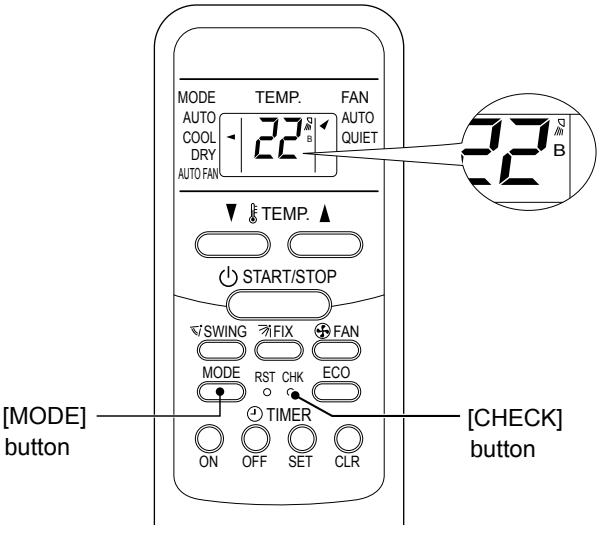


Fig. 8-6-1

3. Confirm that the indoor unit can operate with the new setting.

8-7. Others

8-7-1. Gas leak test

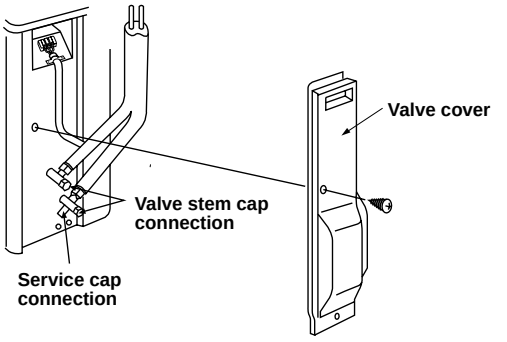


Fig. 8-7-1

- Check the flare nut connections, valve stem cap connections and service port cap connections for gas leak with a leak detector or soap water.

8-7-2. Test operation

To switch the TEST RUN (COOL) mode, press RESET button for 10 seconds.
(The beeper will make a short beep.)

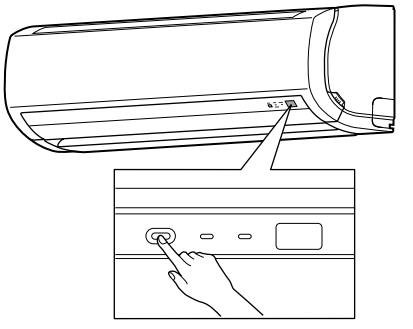


Fig. 8-7-2

8-7-3. Auto restart setting

This product is designed so that, after a power failure, it can restart automatically in the same operating mode as before the power failure.

Information

The product was shipped with Auto Restart function in the off position. Turn it on as required.

<How to set the auto restart>

- Press and hold the RESET button for about 3 seconds. the electronic beeper makes three short beeps to tell you the Auto Restart has been selected.
- To cancel the Auto Restart, follow the steps described in the section Auto Restart Function of the Owner's Manual.

9. TROUBLESHOOTING CHART

9-1. Troubleshooting Procedure

Follow the details of **9-2. Basic Check Items.**
If there is no trouble corresponding to 9-2, check whether or not there are faulty parts following 9-4. Self-Diagnosis by Remote Control.

9-2. Basic Check Items

9-2-1. Power supply voltage

The line voltage must be AC 220 – 240V. If it is not within this range, the air conditioner may not operate normally.

9-2-2. Incorrect cable connection between Indoor and outdoor units

The indoor unit is connected to the outdoor unit with 5 cables (Heat pump model) or 3 cables (Cooling Only model). Check that the indoor and outdoor units have been properly connected with terminals assigned the same numbers. If the connectors are not properly connected, the outdoor unit will not operate normally, or OPERATION lamp and TIMER lamp will blink (5Hz).

9-2-3. Program control

The microcontroller operates as shown in Table 9-2-1 to control the air conditioner. If there are any operational problems, check whether or not the problems correspond to Table 9-2-1. If they correspond to the Table, they are not problems with the air conditioner, but they are indispensable operations to control and maintain the air conditioner properly.

Table 9-2-1

No.	Operation of air conditioner	Descriptions
1	When the main power supply is turned on, the OPERATION lamp on the indoor unit blinks.	The OPERATION lamp blinks to indicate that power is turned on. If the [START/STOP] button is pressed, the lamp stops blinking.
2	The indoor fan motor speed does not change in the Dry operation.	The indoor fan motor speed is automatically controlled in the Dry operation.
3	The compressor is not turned off even though the room temperature is in the range that the compressor is turned off.	The compressor has a function that it is not turned off for 3 minutes after it is turned on even though the room temperature is in the range that the compressor is turned off.
4	The compressor is not turned on and off even though the thermo control is operated in the Dry operation.	In the Dry operation, the compressor is turned on and off automatically at the regular intervals, independent of the thermo control.
5	The compressor is not turned on even though the room temperature is in the range that the compressor is turned on.	The compressor is not turned on in the restart delay timer (3-minutes timer) operation. It is also not turned on after the power supply is turned on because of this timer operation.
6	The operation mode changes in the Automatic operation.	In Automatic operation, the room temperature is detected all time for control fan speed and the operation mode is changed every 15 minutes according to difference between the room temperature and the preset temperature.
7	The Auto Fan operation continues in the Automatic operation.	When the room temperature is in the range (Preset temperature ± 1°C), the Auto Fan operation is selected.
8	The ECO operation operation does not work.	These operations do not work when the unit is in the Dry operation or Auto Fan operation.

9-3. Primary Judgement

9-3-1. Role of indoor unit controller

The indoor unit controller receives the operation commands from the remote control and executes them.

- Temperature measurement at the air outlet of the indoor heat exchanger by the indoor temperature sensor
- Temperature setting of the indoor heat exchanger by the heat exchanger sensor
- Louver motor control
- Indoor fan motor operation control
- LED display control
- Transferring of operation commands to the outdoor unit

9-3-2. Failure diagnosis

The indoor unit diagnoses the operation condition and indicates the information of the self-diagnosis with the lamps on the display panel of the indoor unit.

Table 9-3-1

	Lamps	Self-diagnosis
A	OPERATION lamp is blinking. (1Hz)	Power failure (when the power supply is turning on)
B	OPERATION lamp is blinking. (5Hz)	Thermo sensor (TA) short or break
C	OPERATION lamp is blinking. (5Hz)	Heat exchanger sensor (TC) short or break
D	OPERATION lamp is blinking. (5Hz)	Indoor fan motor lock or failure
E	OPERATION lamp is blinking. (5Hz)	Indoor P.C. board failure
F	OPERATION and TIMER lamps are blinking. (5Hz)	Wrong wiring of connecting cable
G	OPERATION and TIMER lamps are blinking.	Cycle failure • Gas shortage or other refrigerant cycle trouble • Heat exchanger sensor open, break or short • Overload relay or thermostat trouble of compressor

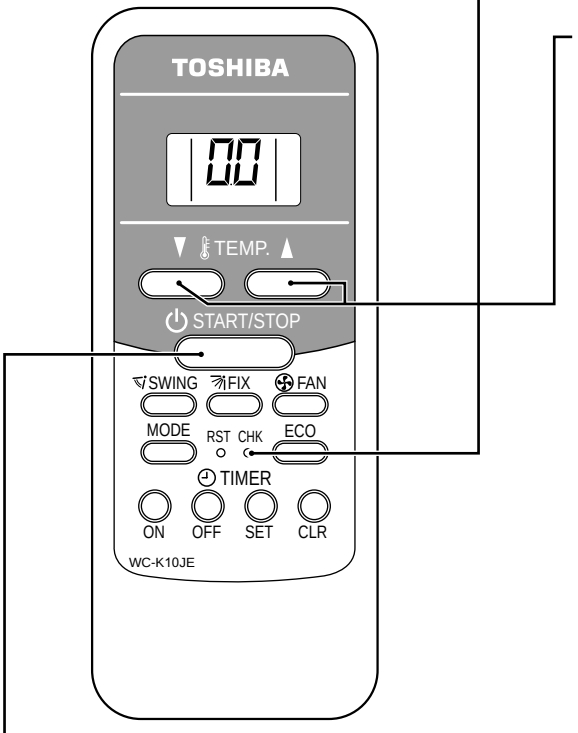
Table 9-3-2 Diagnosis by detective operation

Symptom	Check		Primary judgement
The remote control does not work.	Turn off the power supply once, then turn it on. Try to operate the remote control.	The remote control still does not work.	The indoor unit (and/or remote control) is/are defective.
		The remote control works.	OK.
The outdoor fan does not rotate.	The compressor operates.		The outdoor unit (Outdoor fan motor) is defective.
	The compressor does not operate.		An internal part of the compressor or PCB is defective.

9-4. Self-Diagnosis by Remote Control (Check Code)

(1) If the lamps are indicated as shown B to G in Table 9-3-1, exchanger the self-diagnosis by the remote control.
(2) When the remote control is set to the service mode, the indoor controller diagnoses the operation condition and indicate the information of the self-diagnosis on the display of the remote control with the check codes. If a fault is detected, all lamps on the indoor unit will blink at 5Hz and it will beep for 10 seconds (Pi, Pi, Pi....). The timer lamp usually blinks (5Hz) during the self-diagnosis.

9-4-1. How to use remote control in service mode



(1) Press [CHK] button with a tip of pencil to set the remote control to the service mode.
- "00" is indicated on the display of the remote control.
- The timer lamp on the indoor unit blinks continuously. (5 times per 1 sec.)

(2) Press [▲TEMP.] button.
If there is no fault with a code, the indoor unit will beep once (Pi) and the display of the remote control will change as follows:

→ 00 → 01 → 02 ··· 1d → 1E → 22 →

- Check the unit with all 35 check codes (00 to 22). as shown in Table 9-4-1.
- Press [▼TEMP.] button to change the check code backwards.

If there is a fault, the indoor unit will beep for 10 seconds (Pi, Pi, Pi...).
Note the check code on the display of the remote control.
- 2-digits alphanumeric will be indicated on the display.
- All lamps on the indoor unit will blink. (5 times per 1 sec.)

- Alphanumeric characters are used for the check code.

5	is 5.	6	is 6.
A	is A.	b	is B.
C	is C.	d	is D.

(4) Press [START/STOP] button to release the service mode.
- The display of the remote control returns to as it was before service mode was engaged.

Table 9-4-1

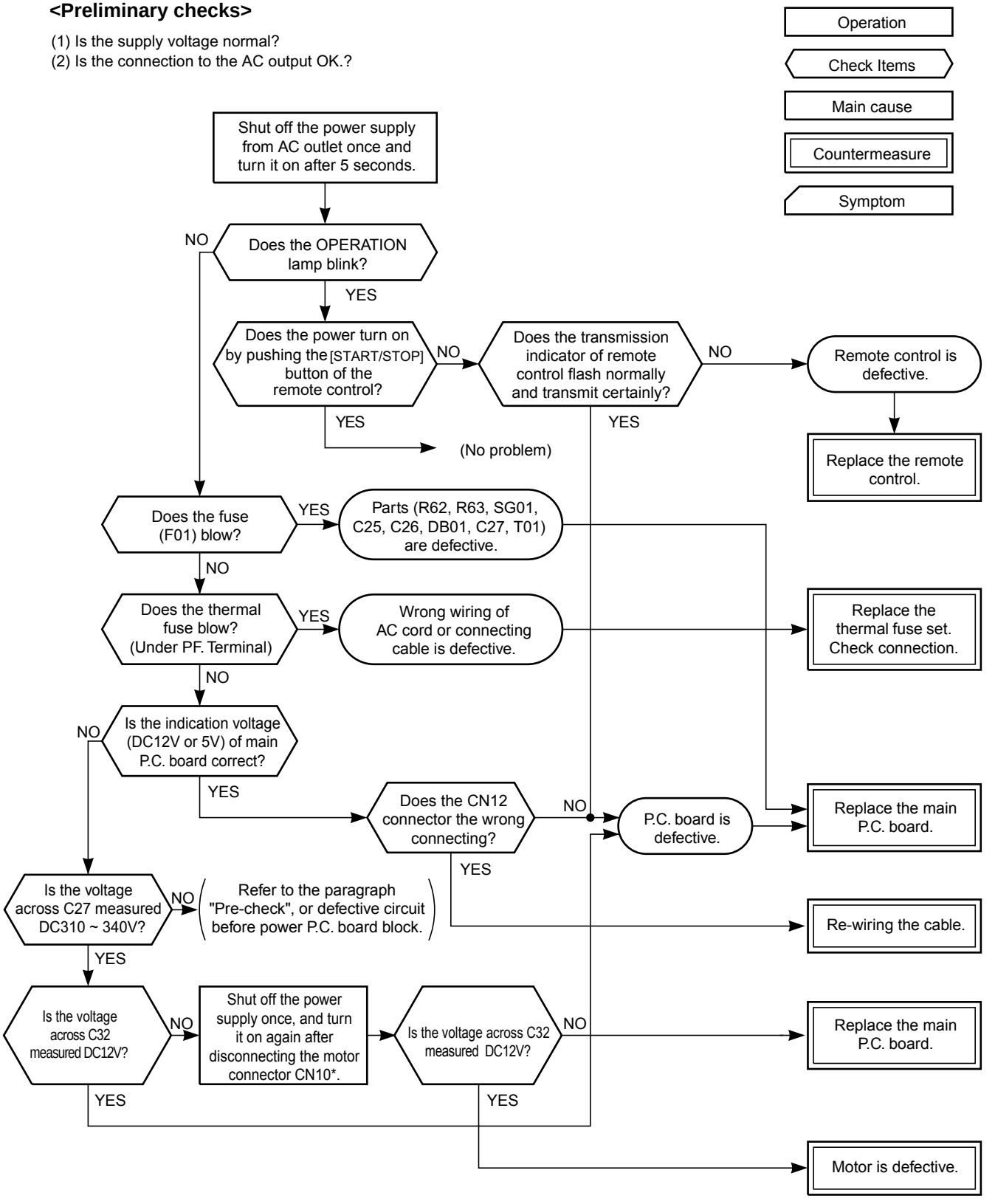
Block level		Diagnosis function				Judgement and action
Check code	**Block**	**Check code**	**Symptom**	**Air Conditioner status**	**Condition**	
00	Indoor P.C. board	0C	Thermo. sensor short/break.	Continued operation.	Indicated when detected abnormal	1. Check thermo sensor. 2. If it is OK, check P.C. board.
		0d	Heat exchanger sensor short/break.	Continued operation.	Indicated when detected abnormal	1. Check heat exchanger sensor. 2. If it is OK, check P.C. board.
		11	Indoor fan lock, abnormality of indoor fan or thermal fuse break.	All off	Indicated when detected abnormal	1. Check heat thermal fuse is blow or not? (Terminal block part.) 2. If the thermal fuse is not blow, check indoor fan motor. (Refer to trouble shooting flow charts.)
		12	Abnormality of other indoor unit P.C. board.	All off	Indicated when detected abnormal	Replace P.C. borad.
01	Cable connection/ Thermal fuse Refrigerant system	04	1) Wrong wiring or disconnection of connective cable. 2) Terminal fuse cut off.	All off	Indicated when detected abnormal	1. Check connective cable correct if wiring is wrong. 2. Check thermal fuse and Terminal blocks. 3. If it is OK, check P.C. board.
03	Other parts (including compressor)	09	1) Overload relay or thermostat for compressor break.	All off	Indicated when detected abnormal	1. If overload relay and themostat for compressor are OK, check refrigerant cycle. 2. If refrigerant cycle is OK, check P.C. board. 3. If heat exchanger sensor is OK, check overload relay and themostat for compressor.
Content detected by the check codes "04" to "Id" are stored in memory of the microcomputer even if the power supply is turned off. Therefore, contents of operations in the past are all displayed.						

9-5. Troubleshootig Flowcharts

9-5-1. Power can not be turned on (No operation at all)

<Preliminary checks>

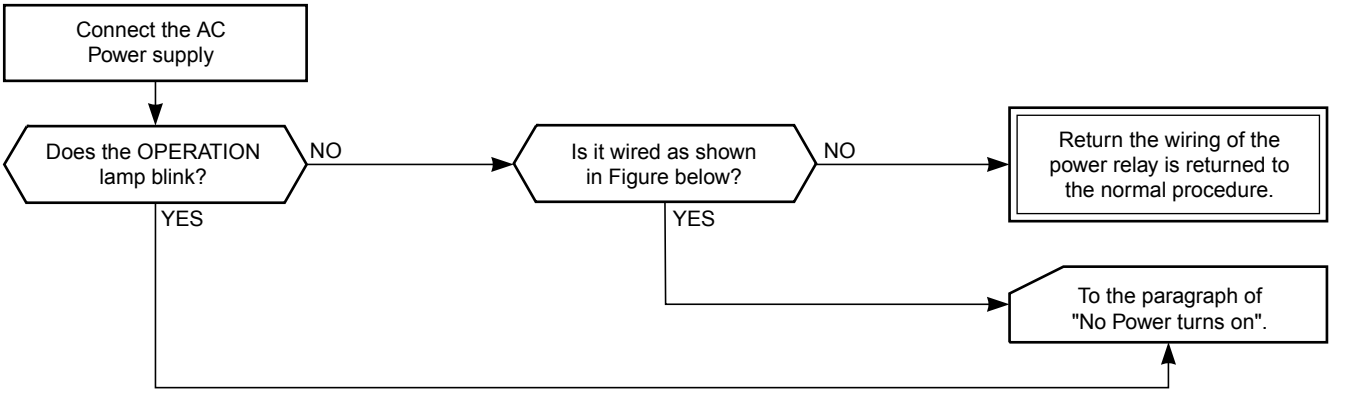
(1) Is the supply voltage normal?
(2) Is the connection to the AC output OK.?

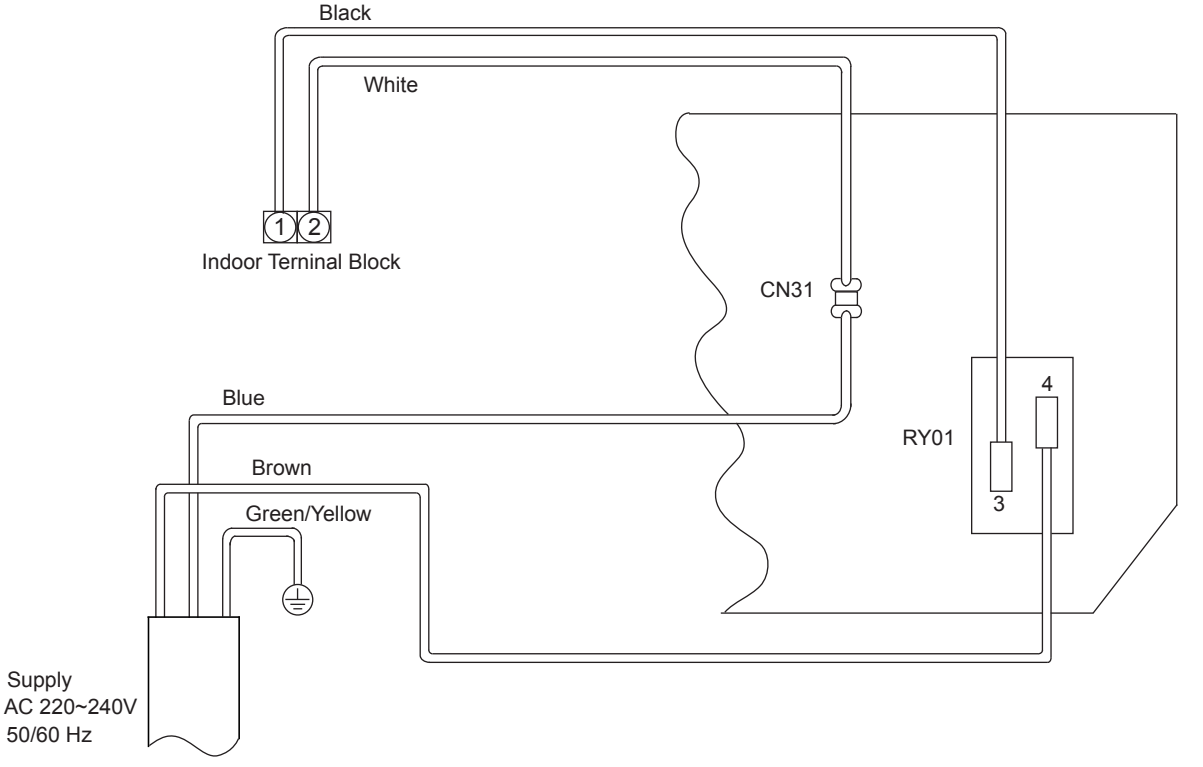

Operation
Check Items
Main cause
Countermeasure
Symptom
Shut off the power supply from AC outlet once and turn it on after 5 seconds.
Does the OPERATION lamp blink?
NO
YES
Does the power turn on by pushing the [START/STOP] button of the remote control?
NO
YES
(No problem)
Does the transmission indicator of remote control flash normally and transmit certainly?
NO
YES
Remote control is defective.
Replace the remote control.
Does the fuse (F01) blow?
YES
Parts (R62, R63, SG01, C25, C26, DB01, C27, T01) are defective.
NO
Does the thermal fuse blow? (Under PF. Terminal)
YES
Wrong wiring of AC cord or connecting cable is defective.
Replace the thermal fuse set. Check connection.
NO
Is the indication voltage (DC12V or 5V) of main P.C. board correct?
NO
YES
Does the CN12 connector the wrong connecting?
NO
P.C. board is defective.
Replace the main P.C. board.
YES
Is the voltage across C27 measured DC310 ~ 340V?
NO
Refer to the paragraph "Pre-check", or defective circuit before power P.C. board block.
Re-wiring the cable.
YES
Is the voltage across C32 measured DC12V?
NO
Shut off the power supply once, and turn it on again after disconnecting the motor connector CN10*.
Is the voltage across C32 measured DC12V?
NO
Replace the main P.C. board.
YES
YES
Motor is defective.

* Be sure to disconnect the motor connector CN10 after shut off the power supply, or it will be a cause of damage of the motor.

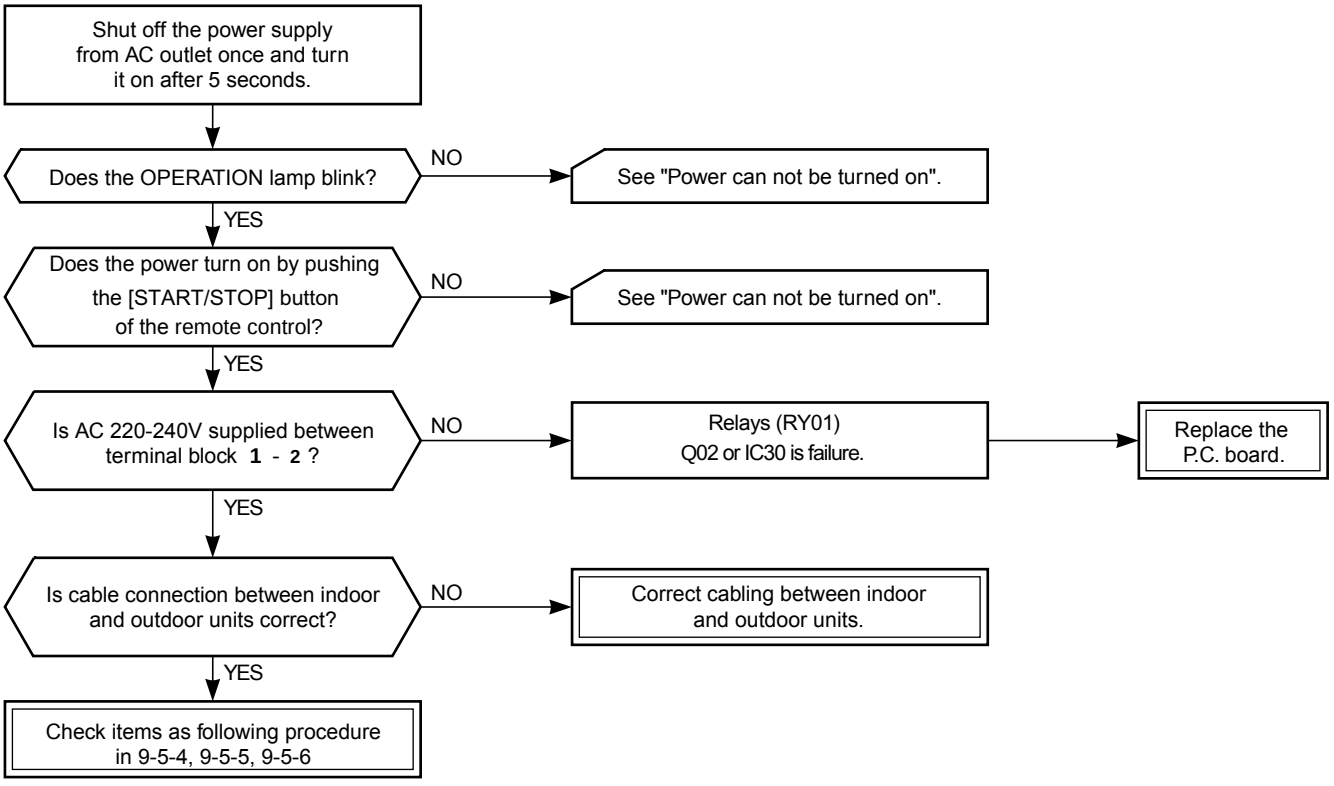
9-5-2. Power can not be turned on after replacing indoor P.C. board

<Checking Procedure>

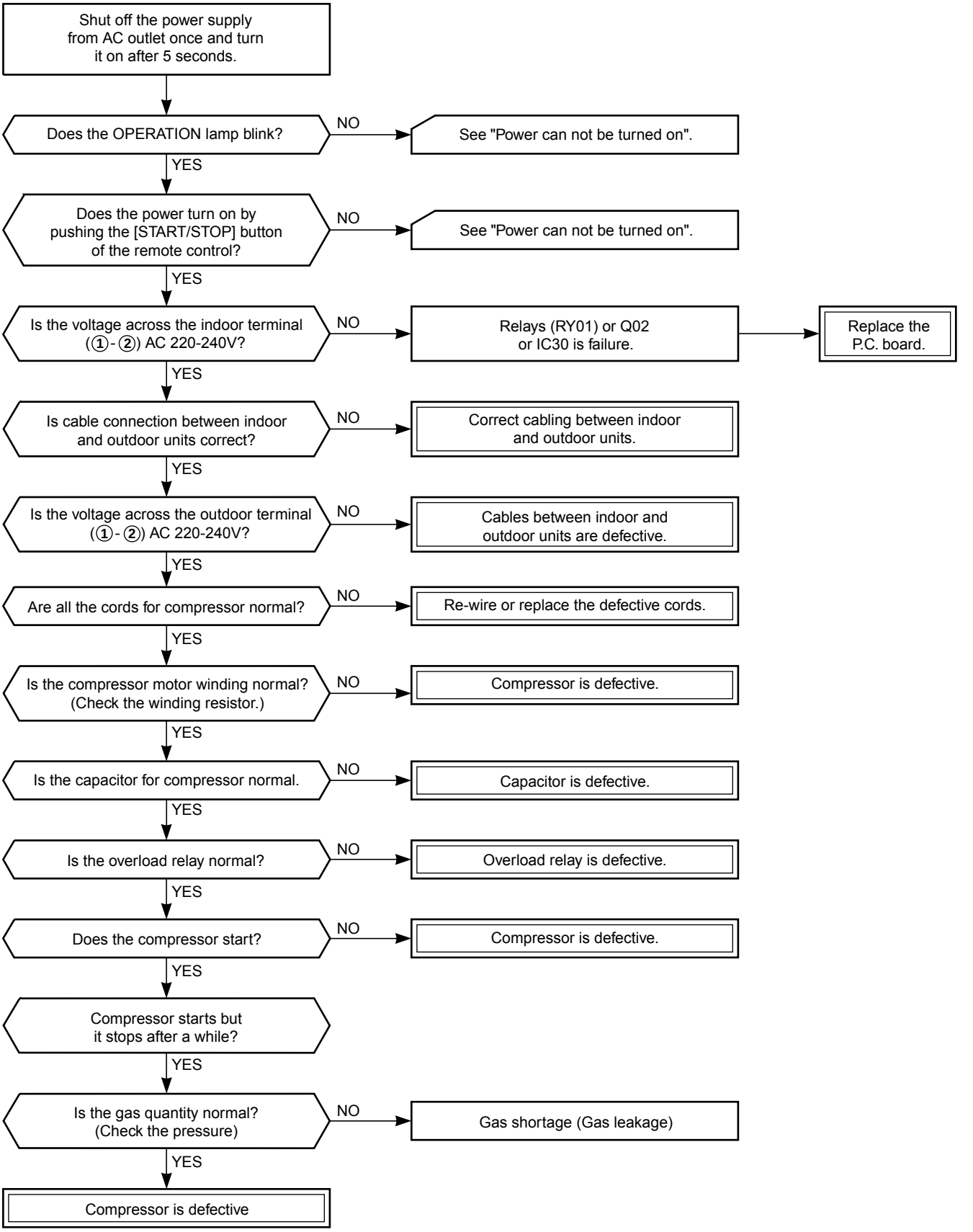

Connect the AC Power supply
Does the OPERATION lamp blink?
NO
YES
Is it wired as shown in Figure below?
NO
YES
Return the wiring of the power relay is returned to the normal procedure.
To the paragraph of "No Power turns on".



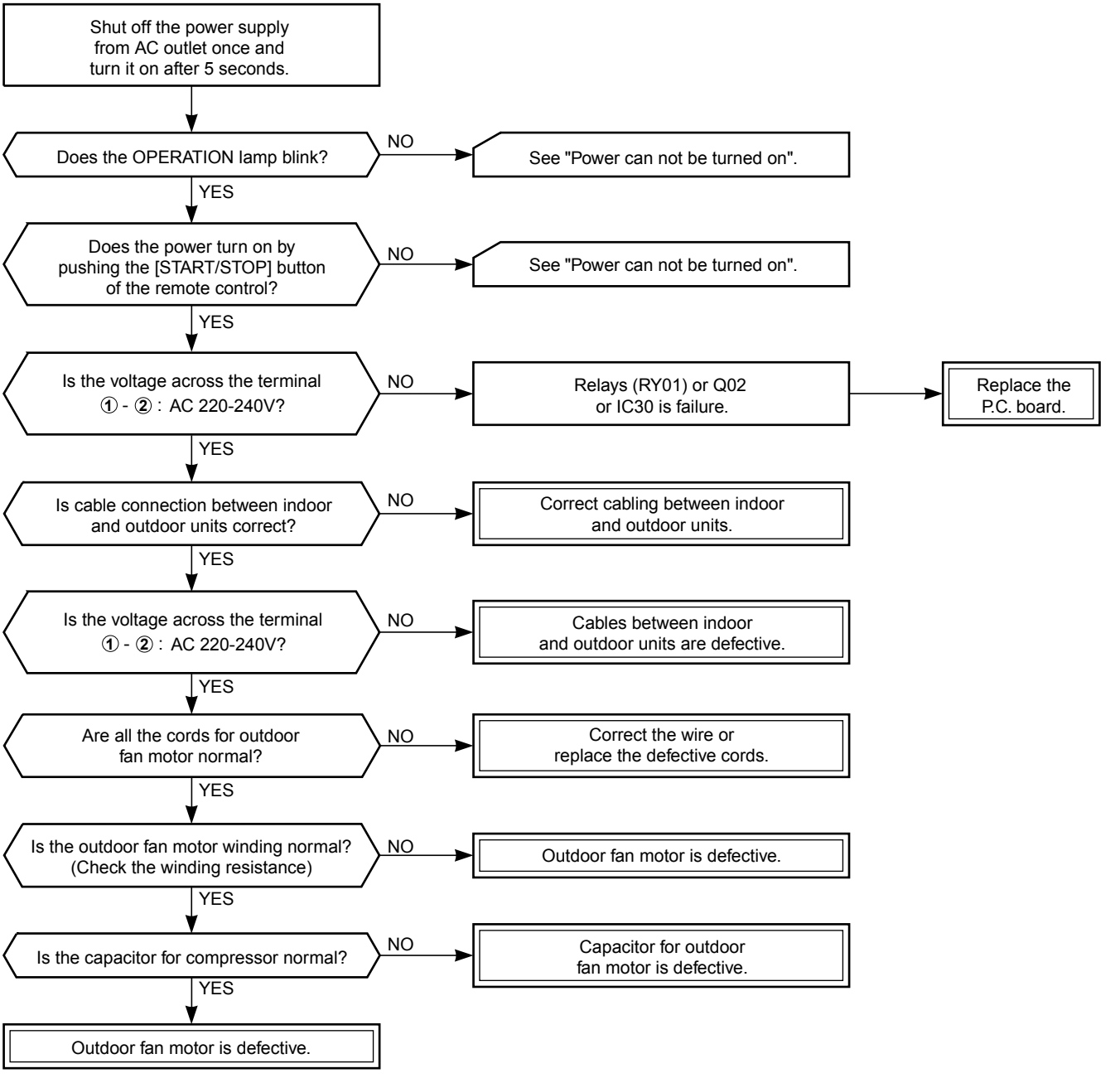
9-5-3. Outdoor unit does not operate

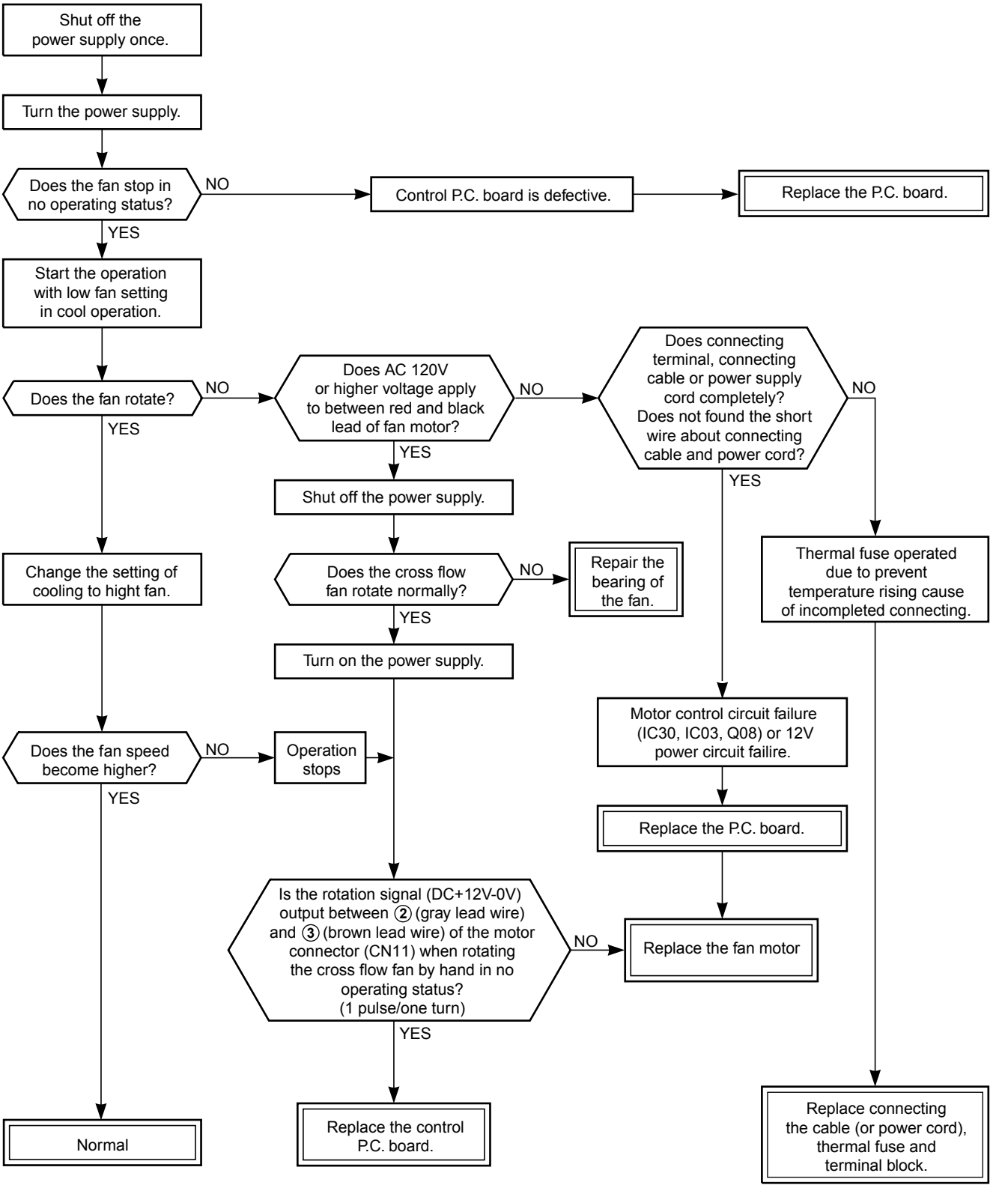

Shut off the power supply from AC outlet once and turn it on after 5 seconds.
Does the OPERATION lamp blink?
NO
See "Power can not be turned on".
YES
Does the power turn on by pushing the [START/STOP] button of the remote control?
NO
See "Power can not be turned on".
YES
Is AC 220-240V supplied between terminal block 1 - 2 ?
NO
Relays (RY01) Q02 or IC30 is failure.
Replace the P.C. board.
YES
Is cable connection between indoor and outdoor units correct?
NO
Correct cabling between indoor and outdoor units.
YES
Check items as following procedure in 9-5-4, 9-5-5, 9-5-6

9-5-4. Only compressor does not operate

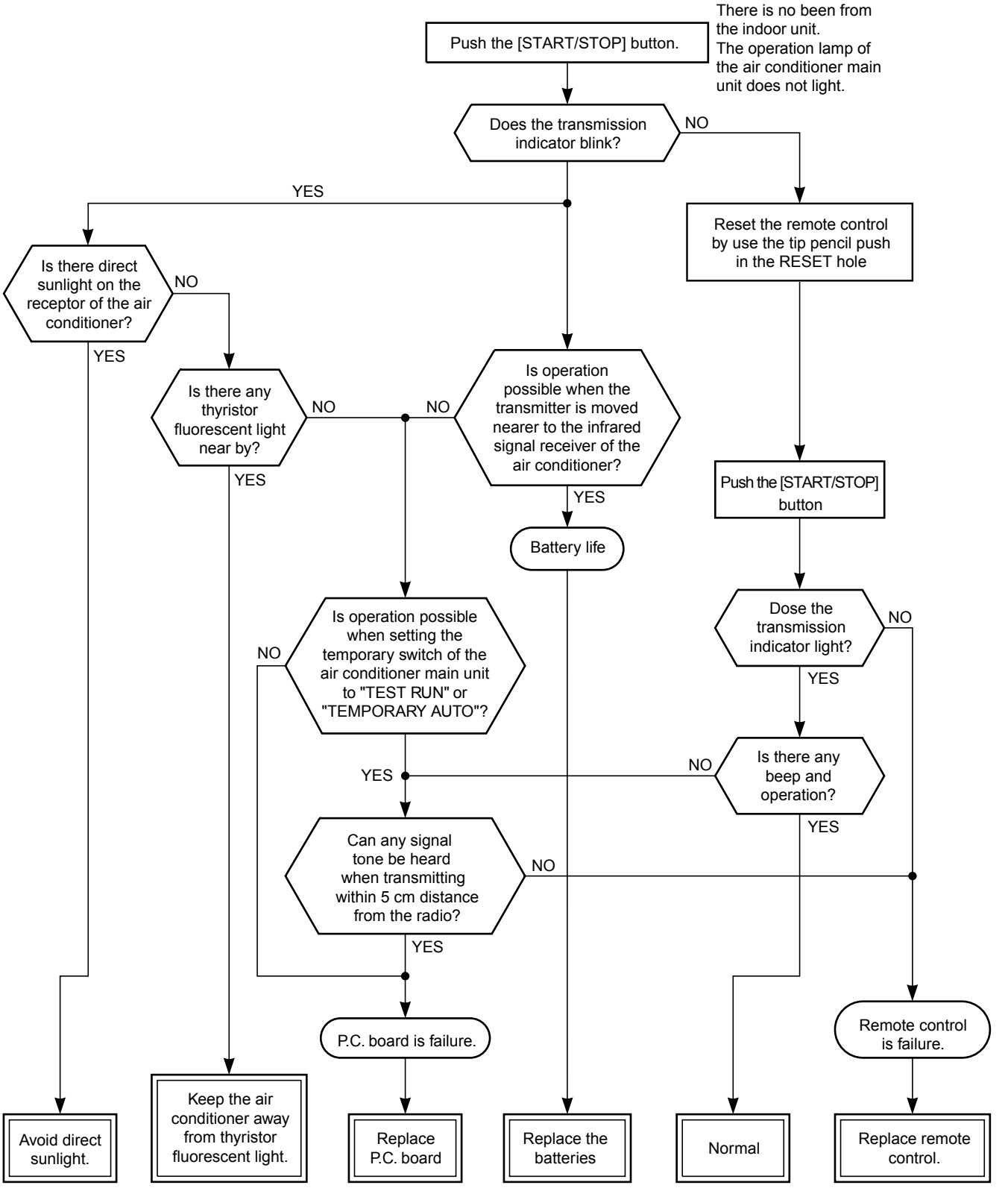

Shut off the power supply from AC outlet once and turn it on after 5 seconds.
Does the OPERATION lamp blink?
NO
See "Power can not be turned on".
YES
Does the power turn on by pushing the [START/STOP] button of the remote control?
NO
See "Power can not be turned on".
YES
Is the voltage across the indoor terminal (①-②) AC 220-240V?
NO
Relays (RY01) or Q02 or IC30 is failure.
Replace the P.C. board.
YES
Is cable connection between indoor and outdoor units correct?
NO
Correct cabling between indoor and outdoor units.
YES
Is the voltage across the outdoor terminal (①-②) AC 220-240V?
NO
Cables between indoor and outdoor units are defective.
YES
Are all the cords for compressor normal?
NO
Re-wire or replace the defective cords.
YES
Is the compressor motor winding normal? (Check the winding resistor.)
NO
Compressor is defective.
YES
Is the capacitor for compressor normal.
NO
Capacitor is defective.
YES
Is the overload relay normal?
NO
Overload relay is defective.
YES
Does the compressor start?
NO
Compressor is defective.
YES
Compressor starts but it stops after a while?
YES
Is the gas quantity normal? (Check the pressure)
NO
Gas shortage (Gas leakage)
YES
Compressor is defective

9-5-5. Only outdoor fan does not operate


Shut off the power supply from AC outlet once and turn it on after 5 seconds.
Does the OPERATION lamp blink?
NO
See "Power can not be turned on".
YES
Does the power turn on by pushing the [START/STOP] button of the remote control?
NO
See "Power can not be turned on".
YES
Is the voltage across the terminal ① - ② : AC 220-240V?
NO
Relays (RY01) or Q02 or IC30 is failure.
Replace the P.C. board.
YES
Is cable connection between indoor and outdoor units correct?
NO
Correct cabling between indoor and outdoor units.
YES
Is the voltage across the terminal ① - ② : AC 220-240V?
NO
Cables between indoor and outdoor units are defective.
YES
Are all the cords for outdoor fan motor normal?
NO
Correct the wire or replace the defective cords.
YES
Is the outdoor fan motor winding normal? (Check the winding resistance)
NO
Outdoor fan motor is defective.
YES
Is the capacitor for compressor normal?
NO
Capacitor for outdoor fan motor is defective.
YES
Outdoor fan motor is defective.


Shut off the power supply once.
Turn the power supply.
Does the fan stop in no operating status?
NO
Control P.C. board is defective.
Replace the P.C. board.
YES
Start the operation with low fan setting in cool operation.
Does the fan rotate?
NO
Does AC 120V or higher voltage apply to between red and black lead of fan motor?
NO
Does connecting terminal, connecting cable or power supply cord completely? Does not found the short wire about connecting cable and power cord?
NO
YES
YES
YES
Shut off the power supply.
Change the setting of cooling to hight fan.
Does the cross flow fan rotate normally?
NO
Repair the bearing of the fan.
Thermal fuse operated due to prevent temperature rising cause of incompleted connecting.
YES
Turn on the power supply.
Motor control circuit failure (IC30, IC03, Q08) or 12V power circuit failire.
Does the fan speed become higher?
NO
Operation stops
YES
Replace the P.C. board.
Is the rotation signal (DC+12V-0V) output between ② (gray lead wire) and ③ (brown lead wire) of the motor connector (CN11) when rotating the cross flow fan by hand in no operating status? (1 pulse/one turn)
NO
Replace the fan motor
YES
Normal
Replace the control P.C. board.
Replace connecting the cable (or power cord), thermal fuse and terminal block.

9-6. Troubleshooting for Remote Control (Including the Indoor P.C. Board)


There is no been from the indoor unit. The operation lamp of the air conditioner main unit does not light.
Push the [START/STOP] button.
Does the transmission indicator blink?
NO
YES
Reset the remote control by use the tip pencil push in the RESET hole
Is there direct sunlight on the receptor of the air conditioner?
NO
YES
Is there any thyristor fluorescent light near by?
NO
YES
NO
Is operation possible when the transmitter is moved nearer to the infrared signal receiver of the air conditioner?
YES
Battery life
Push the [START/STOP] button
Dose the transmission indicator light?
NO
YES
Is operation possible when setting the temporary switch of the air conditioner main unit to "TEST RUN" or "TEMPORARY AUTO"?
NO
YES
NO
Is there any beep and operation?
YES
Can any signal tone be heard when transmitting within 5 cm distance from the radio?
NO
YES
P.C. board is failure.
Remote control is failure.
Avoid direct sunlight.
Keep the air conditioner away from thyristor fluorescent light.
Replace P.C. board
Replace the batteries
Normal
Replace remote control.

9-6-1 How to check the P.C. board

(1) Operating precautions

1) When removing the front panel or the P.C. board, be sure to shut off the power supply.
2) When removing the P.C. board, hold the edge of the P.C. board and do not apply force to the parts.
3) When connecting or disconnecting the connectors on the P.C. board, hold the Whole housing. Do not pull at the lead wire.

(2) Inspection procedres

1) When a P.C. board is judged to be defective, check for disconnection, burning, or discoloration of the copper foil pattern or this P.C. board.
2) The P.C. board consists of the following 2 parts
   a. Main P.C. board part:
   power relay, indoor fan motor drive circuit and control circuit, C.P.U. and peripheral circuits, buzzer drive circuit and buzzer.
   b. Infrared rays receive and indication parts:
   Infrared rays receiver unit and LED.

(3) Checking procedure

Table 9-6-1

No.	Procedure	Check Point (Symptom)	Causes
1	Shut off the power supply and remove the P.C. board assembly from the electronic parts base. Remove the connecting cable from the terminal block.	1. Is the fuse blown?	1. • Application of shock voltage. • Overload by short-circuit of the parts.
2	Remove the connector for the motor, and turn the power on. If the OPERATION lamp blinks (0.5 sec. : ON, 0.5 sec. : OFF) when the power turning on, the checking points described as 1-4 of right column are not necessary to perform.	Voltage check 1. Between 4 of RY01 and CN31 (AC 220~240V) 2. Between + and – of C27 (DC 310 ~ 340V) 3. Between 5V and GND 4. Between 12V and GND	1. • AC power cord is defective. • Poor contact of the terminal plate. • Miss wiring of the power relay. 2. • Capacitor (C25, C26) is defective. • Line filter (L01) is defective. • Diode (DB01) is defective. 3. IC02 is defective. 4. T01, DB01, R64, C27 are detective.
3	Make the operation status by pushing once the [START/STOP] button, except the status of [FAN ONLY], [ON TIMER].	Voltage check 1. Voltage of relay coil. (DC 12V) Between pin C of Q02 and GND 2. Between No. 1 and 2 of connecting cable terminal block. (AC 220~240V)	1. Breaking wire of the relay coil, defective relay driver. 2. Poor contact of relay.
4	Start the operation with the system which the time of the restart delay timer is shortened.	1. All indicators light for 3 sec.. 2. Indicators do not indicate normally after approximate 3 sec..	} Defective indicator, or poor housing assembly. (CN12)
5	Make the operation status by pressing once the [START/STOP] button. 1. The time of the restart delay timer is shortened. 2. Cool operation 3. Air volume [AUTO] 4. Make the setting temperature lower enough than room temperature. 5. Continuous operation.	1. Compressor does not operate. 2. OPERATION lamp blinks.	1. The temperature of the indoor heat exchanger is abnormally lower. 2. Poor contact of the heat exchanger sensor. (The connector is disconnected.) (CN01) 3. Heat exchanger sensor, main P.C. board are defective. (Refer to Table 9-6-2 for the judgment of defective resistance values.) 4. Main P.C. board is defective.
6	Turn the power on after connecting the motor connector. Start the operation with the following condition. 1. Operation [Cooling] 2. Airflow [High fan] 3. Continuous operation	1. Motor does not rotate. (The key operation is accepted.) 2. The Motor rotates, but it vibrates too much.	1. Poor contact of the motor connector. 2. P.C. board is defective.

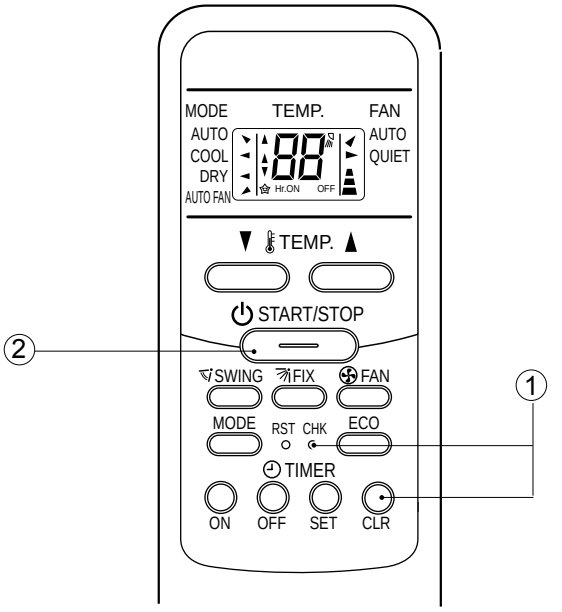
Table 9-6-3 Approximate resistance value of thermo sensor

(kΩ)

Temperature	0°C	10°C	20°C	25°C	30°C
Resistance value	33.8	20.35	12.59	10.00	7.99

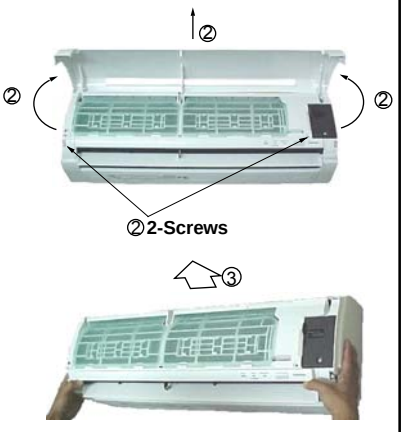
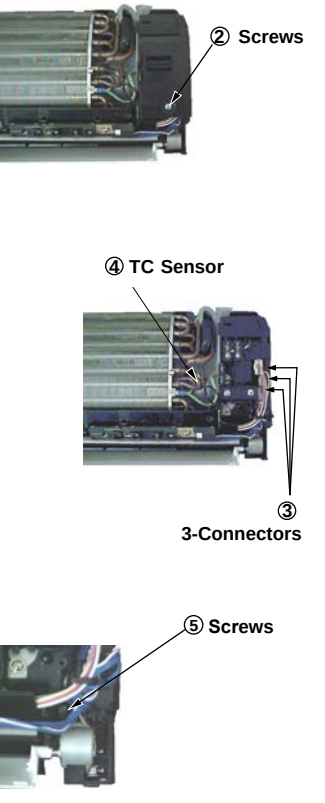
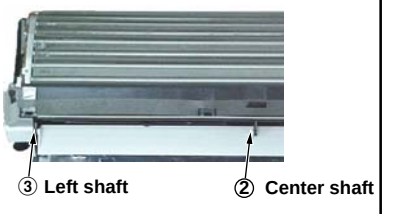
9-6-3. How to shorten time of restart delay timer

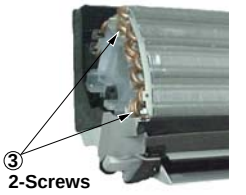
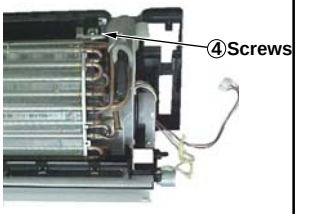
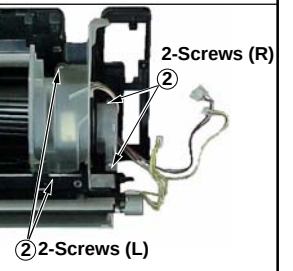
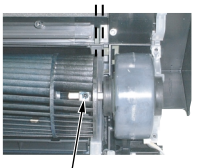
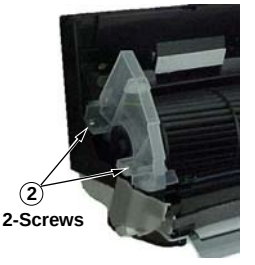
① Press [CLR] button while pressing [CHK] button with a tip of a pencil.
② Then press [START/STOP] signal to the indoor unit.



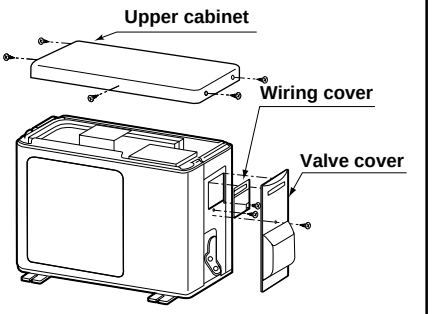
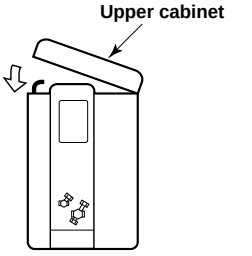
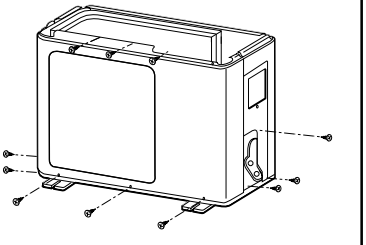
10. PART REPLACEMENT

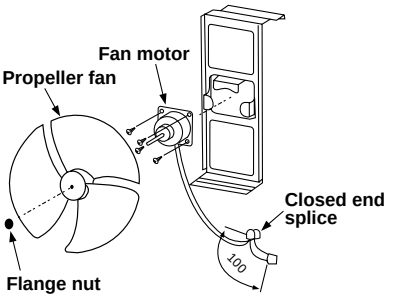
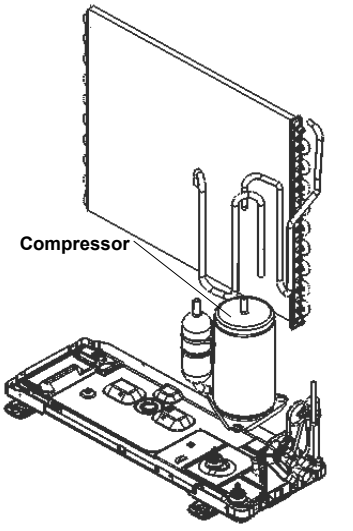
10-1. Indoor Unit

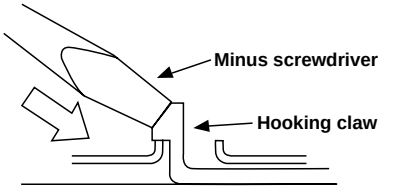
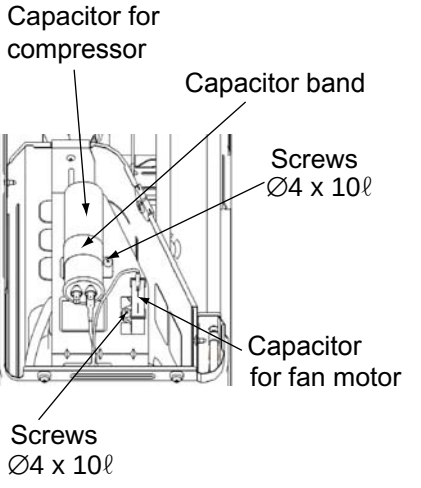
No.	Part name	Procedures	Remarks
①	Front panel	How to remove the front panel 1) Stop the operation of the air conditioner and turn off its main power supply. 2) Pull the air inlet grille toward you to open it and remove the air inlet grille. Then remove the 2 screws fixing the front panel. 3) First open the horizontal louver, and then remove the front panel from the back body by pulling it toward you. How to mount the front panel Push the front panel back in and make sure all hooks are locked.	
②	Electrical part	How to remove the electrical part. 1) Remove the front panel with procedure ①. 2) Remove the screw holding the electrical part cover. 3) Disconnect the 3 connectors 2-(3P) for the fan motor and the connector (5P) for the louver motor from the P.C. board assembly. 4) Pull out the TC sensor from the sensor holder. 5) Remove the screw for the ground connection, remove the screw for the electrical part box. Then remove the LED and the electrical part box from the main unit. How to mount the electrical part. 1) To put back the electrical part box, lock it to the upper hook of the back body. 2) Tighten the screws on the electrical part box. 3) Connect the 3 connectors and arrange the wiring same as original condition and then tighten the screw from the LED unit to the back body. 4) Attach the TC sensor to the holder. 5) Tighten the screw for the ground connection. 6) Tighten the screw on the electrical part cover.	
③	Horizontal louver	1) Remove the front panel and the electrical part following procedure ②. 2) Remove the center shaft of the horizontal louver from the back body. 3) Remove the left shaft from the back body. 4) Remove the horizontal louver from the back body.	

No.	Part name	Procedures	Remarks
④	Heat exchanger	1) Remove the front panel, electrical part and the horizontal louver following procedure ③. 2) Remove the pipe holder at the rear side of main unit. 3) Remove the 2 screws on the heat exchanger at the base bearing. 4) Remove the screw on the heat exchanger at the fixed plate from the back body and then pull out the right hand side until the socket of heat exchanger released from the hook of the band motor (L), and then pull out the upper side of heat exchanger slowly.	 ② Pipe holder  ③ 2-Screws  ④Screws
⑤	Cross flow fan	1) Remove the front panel, electrical part, horizontal louver and the heat exchanger following procedure ④. 2) Remove the 2 screws on the band motor (L) and remove the 2 screws on the band motor (R) and then remove the cross flow fan. 3) Loosen the set screw of the cross flow fan then separate the fan and the fan motor. Notice To assemble cross flow fan and fan motor to the unit, please turn the fan motor unit the center of its terminal meets the top position of band motor (R). Fix the cross flow fan with the set screw at the position where the gap between the back body and the right surface of the cross flow fan is 4.7 mm.	 2-Screws (R) ② ②2-Screws (L) 4.7 mm  ⑥ Set screw Middle of the fan motor terminal
⑥	Base bearing	1) Remove the front panel, electrical part, horizontal louver, heat exchanger and the cross flow fan following procedure ⑤. 2) Remove the 2 screws fixing the base bearing. 3) Remove the bearing from the base bearing. If the housing protrudes from the base bearing, put the housing in position and attach the bearing to the base bearing.	 ② 2-Screws

10-2. Outdoor Unit

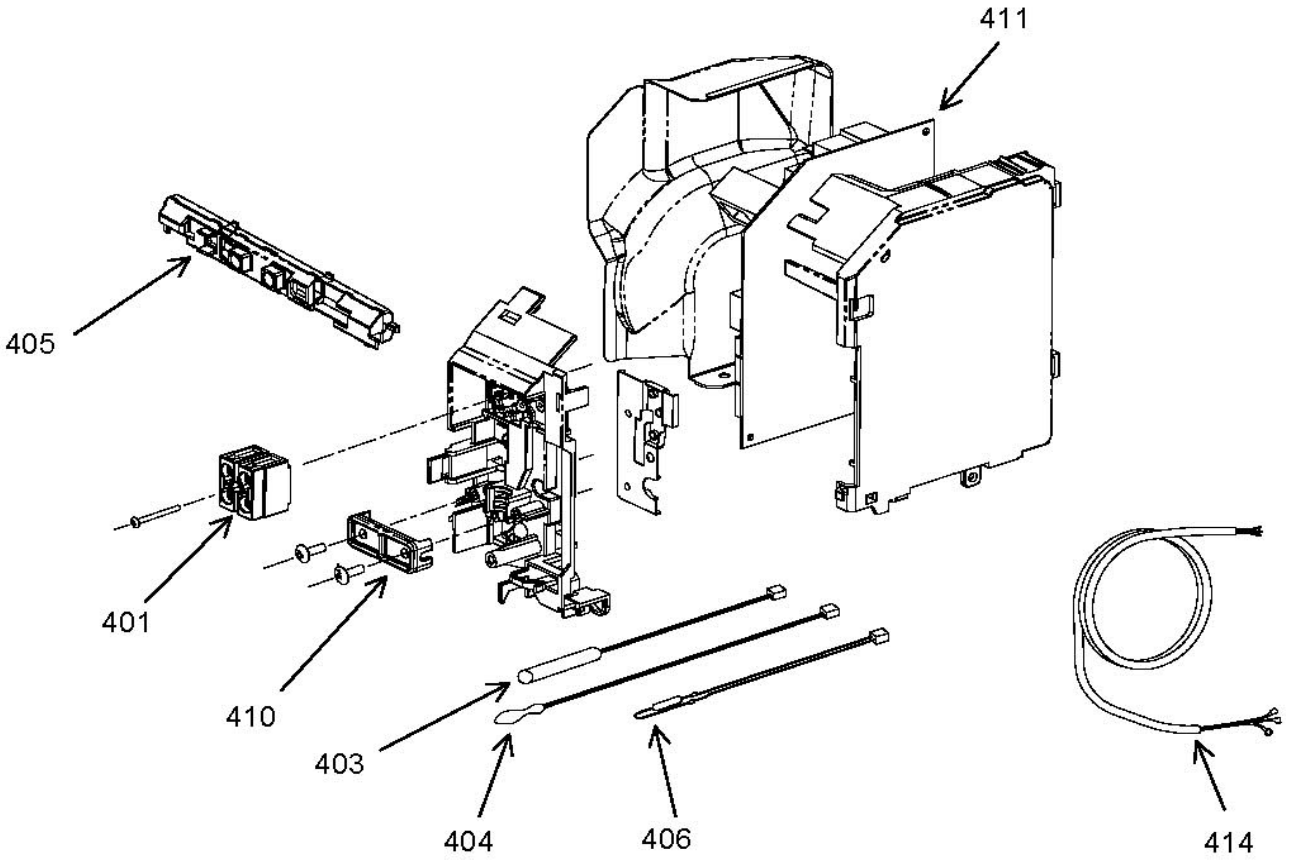
No.	Part name	Procedures	Remarks
①	Common procedure	**1. Detachment** 1) Stop operation of the air conditioner, and turn off the main switch and breaker of the air conditioner. 2) Remove the valve cover. (ST1T∅4 x 10ℓ 1 pc) • After removing screw, remove the valve cover pulling it downward. 3) Remove the wiring cover (ST1T∅4 x 10ℓ 2 pcs.), and then remove the power cord, connecting cable, and cord clamp (ST2T∅4 x 16ℓ 2 pcs.). 4) Remove the upper cabinet. (ST1T∅4 x 10ℓ 5 pcs.) • After removing screws, remove the upper cabinet pulling it upward. **2. Attachment** 1) Attach the upper cabinet. (ST1T∅4 x 10ℓ 5 pcs.) • Hook the rear side of the upper cabinet to the claw of the rear cabinet, and then place it on the front cabinet. 2) After connecting the power cord and connecting cable, attach the cord clamp and wiring cover. • Insert the upper part into the upper cabinet, and insert the claw which has been hooked to the lower part into the square hole, and then fix it with screw. (ST1T∅4 x 10ℓ 1 pc.) 3) Attach the valve cover. (ST1T∅4 x 10ℓ 1 pc.) • Insert the upper part to the upper cabinet, set the hook claw of the valve cover to square holes (at three positions) of the main unit, and attach it pushing upward.	 
②	Front cabinet	**1. Detachment** 1) Perform work of item 1 of ①. 2) Remove upper screw (ST1T∅4 x 10ℓ 3 pcs.) of the front cabinet, and lower screws (ST1T∅4 x 10ℓ 8 pcs.) of the front cabinet. • Both side of front cabinet envelop the unit, so remove it by pulling sideward. **2. Attachment** 1) Assemble front cabinet to the unit. 2) Attach the removed screws to the original positions.	

No.	Part name	Procedures	Remarks
③	Fan motor	1) Perform work of item 1 of ① and 1 of ②. 2) Remove the flange nut fixing the fan motor and the propeller fan. • Flange nut is loosened by turning clockwise. (To tighten the flange nut, turn counter-clockwise.) 3) Remove the propeller fan. 4) Disconnect the connector for the fan motor from the ASM-E-PARTS. 5) Remove the fixing screws (4 pcs.) holding the fan motor by hand so that it does not fall. 6) Cut the motor lead at the point which is 100 mm apart from the connector toward the fan. 7) Use the connector used for the ASM-E-PARTS, and pinch the lead wires using the closed end splice.	
④	Compressor	1) Perform work of item 1 of ①, 1 of ②, ③ 2) Extract refrigerant gas. 3) Remove the partition board. (ST1T∅4 x 10ℓ 3 pcs.) 4) Remove the sound-insulation material. 5) Remove the terminal cover of the compressor, and disconnect the lead wire of the compressor thermo and the compressor from the terminal. 6) Remove the pipe connected to the compressor with a burner. • Make sure the flame does not touch the 4 way valve. 7) Remove the fixing screw of the base plate and heat exchanger. (ST1T∅4 x 10ℓ 2 pcs.) 8) Pull upward the refrigeration cycle. 9) Remove the nut fixing the compressor to the base plate.	

No.	Part name	Procedures	Remarks
⑤	Fan guard	**1. Detachment** 1) Perform work of item 1 of ① and 1 of ②. **Requirement:** **Perform the work on a corrugated cardboard, cloth, etc. to prevent scratches to the product.** 2) Remove the front cabinet, and place it down so that the fan guard side faces downwards. 3) Remove the hooking claws by pushing a minus screwdriver according to the arrow mark in the right figure, and remove the fan guard. **2. Attachment** 1) Insert the claws of the fan guard in the hole of the front cabinet. Push the hooking claws (8 positions) by your hand and fix the claws. **Requirement:** **This completes all the attaching work. Check that all the hooking claws are fixed to the specified positions.**	
⑥	Capacitor for compressor	1) Perform the common procedure ①. 2) Remove the fixing screw and the capacitor band. (1-Screw ∅4 x 10ℓ) 3) Disconnect the lead wires.	
⑦	Capacitor for fan motor	1) Perform the common procedure ①. 2) Remove the fixing screw and the capacitor band. (1-Screw ∅4 x 10ℓ) 3) Disconnect the lead wires.	

11. EXPLODED VIEWS AND PARTS LIST

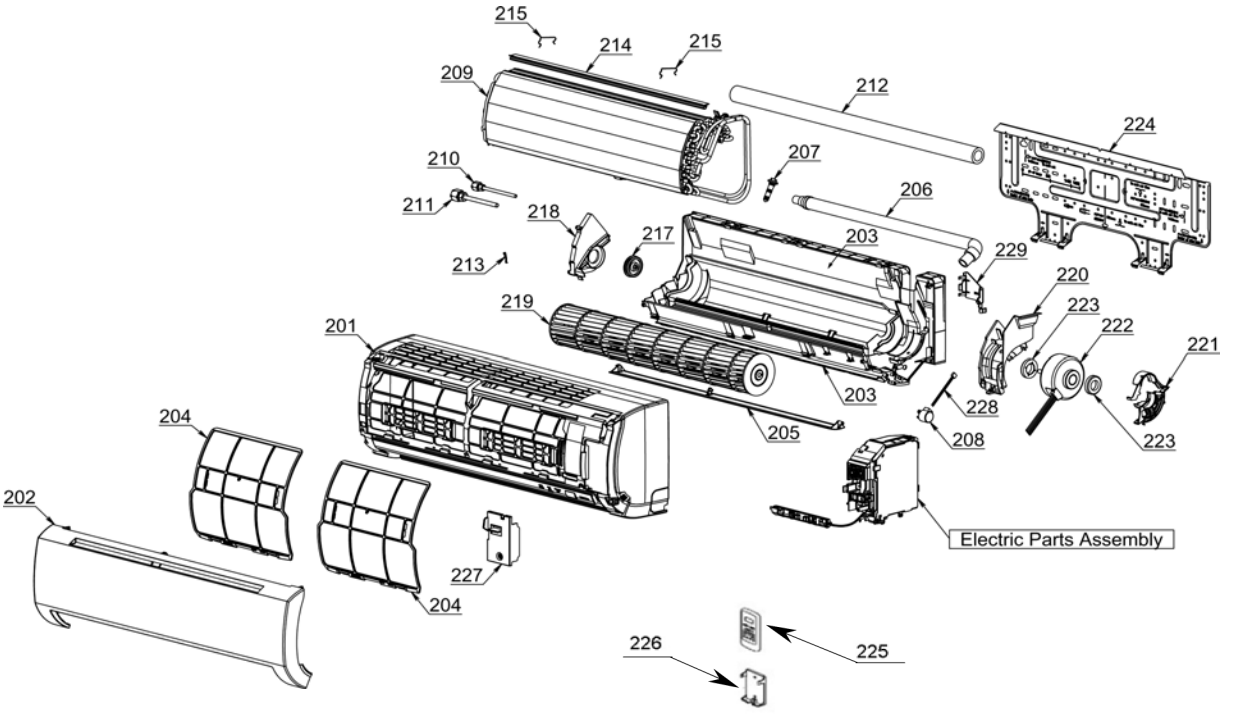
11-1. Indoor Unit (E-Parts Assy)



Location No.	Part No.	Description
401	43T60378	TERMINAL
403	43T69371	SENSOR;HEAT EXCHANGER
404	43T69005	SENSOR;THERMOSTAT
405	43T69612	DISPLAY UNIT
406	43T69364	FUSE,TEMPERATURE

Location No.	Part No.	Description
410	43T62003	CORD CLAMP
411	43T69745	PC BOARD (RAS-07SKSX-1)
411	43T69746	PC BOARD (RAS-09SKSX-1)
414	43T60343	POWER CORD

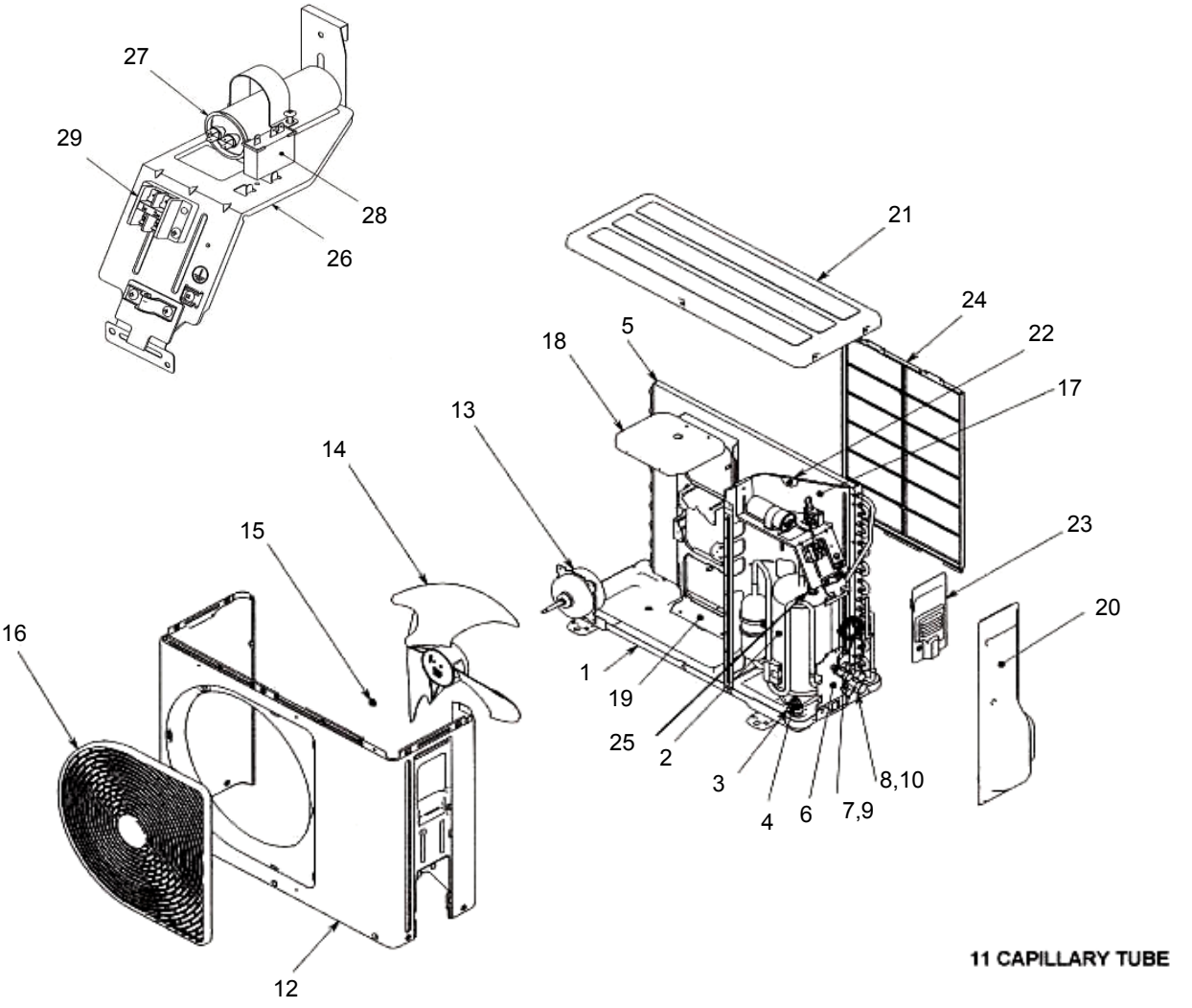
11-2. Indoor Unit



Location No.	Part No.	Description
201	43T00462	FRONT PANEL ASSY
202	43T09393	GRILLE OF AIR INLET
203	43T03358	BACK BODY ASSY
204	43T80315	AIR FILTER
205	43T09392	HORIZONTAL LOUVER
206	43T70313	HOSE, DRAIN
207	43T79301	CAP-DRAIN
208	43T21363	MOTOR; STEPPING
209	43T44424	REFRIGERATION CYCLE ASSY
210	43T47353	PIPE; SUCTION (RAS-13)
211	43T47355	PIPE; SUCTION (U1U2_GD)
212	43T11317	PIPE SHIELD
213	43T19333	HOLDER, SENSOR
214	43T49329	PLATE OF EVA SEAL

Location No.	Part No.	Description
215	43T49006	HOLDER FOR PLATE
217	43T22312	BEARING ASSY, MOLD
218	43T39319	BASE BEARING
219	43T20323	ASSY CROSS FLOW FAN
220	43T39320	MOTOR BAND(LEFT)
221	43T39321	MOTOR BAND(RIGHT)
222	43T21393	FAN MOTOR
224	43T82309	INSTALLATION PLATE
225	43T69437	WIRELESS REMOTE CONTROL
226	43T63002	REMOTE CONTROL HOLDER
227	43T62326	TERMINAL COVER
228	43T60317	CORD MOTOR LOUVER
229	43T07311	PIPE HOLDER

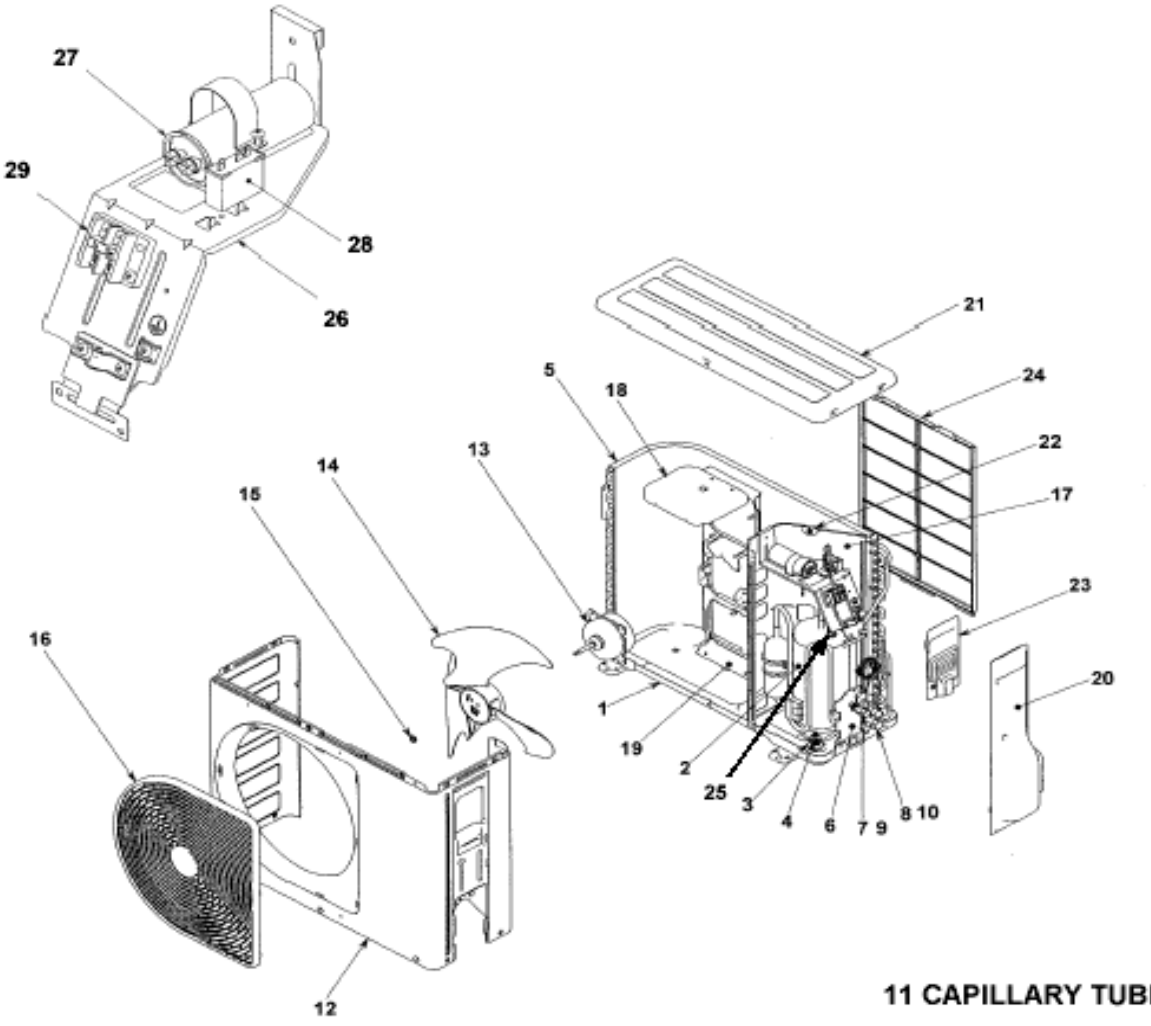
11-3. Outdoor Unit (RAS-07S2AX-1)



Location No.	Part No.	Description
1	43T42335	BASE PLATE ASSEMBLY
2	43T41365	COMPRESSOR(Made in China)
3	43T49327	CUSHION,RUBBER
4	43T97001	NUT
5	43T43407	CONDENSER ASSEMBLY
6	43T00448	FIXING PLATE VALVE
7	43T46332	VALVE;PACKED 6.35 DIA
8	43T00347	VALVE;PACKED 9.52 DIA
9	43T47331	BONNET, 6.35 DIA
10	43T47332	BONNET, 9.52 DIA
11	43T47007	CAPILLARY TUBE; 1.2 DIA
12	43T00486	FRONT CABINET
13	43T21401	MOTOR;FAN
14	43T20324	PROPELLER FAN
15	43T47001	NUT FLANGE

Location No.	Part No.	Description
16	43T19335	FAN GUARD
17	43T04304	PARTITION
18	43T39326	MOTOR BASE CONNECTION PLATE
19	43T39325	MOTOR BASE
20	43T19337	PACKED VALVE COVER
21	43T00481	UPPER CABINET
22	43T96305	BUSHING
23	43T62323	TERMINAL COVER
24	43T19336	FIN GUARD
25	43T54314	RELAY;OVERLOAD
26	43T61310	ELECTRIC PARTS BASE
27	43T55338	CAPACITOR,PLASTIC FILM
28	43T55325	CAPACITOR; PLASTIC-FILM
29	43T60367	TERMINAL-2P

11-4. Outdoor Unit (RAS-09SASX-1)



Location No.	Part No.	Description
1	43T42335	BASE PLATE ASSEMBLY
2	43T41390	COMPRESSOR
3	43T49327	CUSHION,RUBBER
4	43T97001	NUT
5	43T43406	CONDENSER ASSEMBLY
6	43T00448	FIXING PLATE VALVE
7	43T46332	VALVE;PACKED 6.35 DIA
8	43T00347	VALVE;PACKED 9.52 DIA
9	43T47331	BONNET, 6.35 DIA
10	43T47332	BONNET, 9.52 DIA
11	43T47008	CAPILLARY TUBE; 1.5 DIA
12	43T00487	FRONT CABINET
13	43T21401	MOTOR;FAN
14	43T20324	PROPELLER FAN
15	43T47001	NUT FLANGE

Location No.	Part No.	Description
16	43T19335	FAN GUARD
17	43T04304	PARTITION
18	43T39326	MOTOR BASE CONNECTION PLATE
19	43T39325	MOTOR BASE
20	43T19337	PACKED VALVE COVER
21	43T00481	UPPER CABINET
22	43T96305	BUSHING
23	43T62323	TERMINAL COVER
24	43T19336	FIN GUARD
25	43T54303	RELAY;OVERLOAD
26	43T61310	ELECTRIC PARTS BASE
27	43T55337	MF CAPACITOR
28	43T55325	CAPACITOR; PLASTIC-FILM
29	43T60367	TERMINAL-2P

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